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**THUNDER OVER THE NORTH:  
Air-to-Air Combat Over North Vietnam**

**By**

**Benjamin B. Donnelly**

**B.A. The University of Montana, 1997**

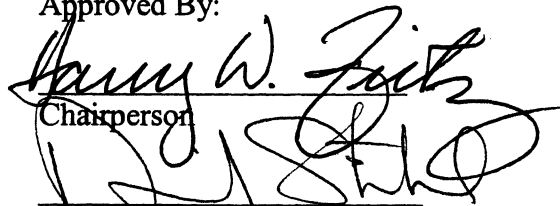
**Presented in partial fulfillment of the requirements for the degree of**

**Master of Arts**

**The University of Montana**

**2004**

Approved By:

Handwritten signature of Barry W. Faith in black ink.

Chairperson

Dean, Graduate School

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Donnelly, Benjamin B., M.A., May 2004

Thunder Over the North: Air-to-Air Combat Over North Vietnam, 1965-1973

Director: Harry Fritz



Few events in the United States' history are more controversial than the Vietnam War, and the air war over North Vietnam is no exception. For a period of eight years, 1965 to 1973, air battles raged up and down the Democratic People's Republic of Vietnam, pitting the United States Air Force and Navy against the much smaller and technologically inferior Vietnamese People's Air Force. On paper, this war seemed a gross mismatch, but due to poor tactics, flawed prosecution of the war on behalf of American politicians, and the tenacious defense of the VPAF, the air war over North Vietnam became a bitter affair in which the advantage shifted from one side to another virtually on a monthly basis. Though the war gradually shifted to the Americans' favor in 1972, air-to-air combat never became a clear-cut victory for either side. Over 300 aerial battles were fought over the course of the war. The effects of these battles led to a radical change in American fighter tactics, culminating in the aerial supremacy enjoyed by the United States since 1990.

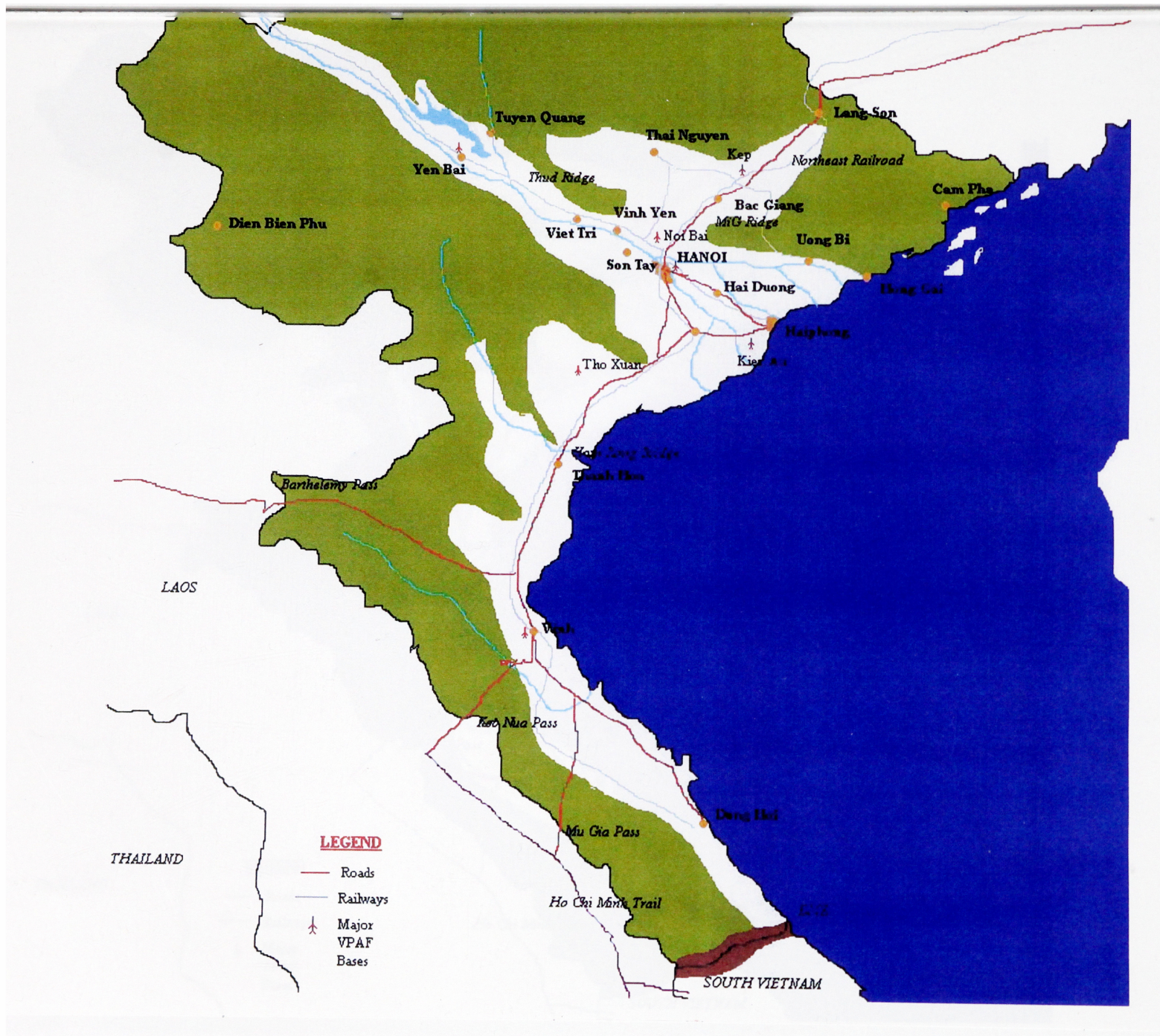
In the period following the end of American involvement in Vietnam in 1973, most of the available history of the air war was written by American pilots and aviation historians. In 1998, with the partial opening of the VPAF's archives to historians, this trend changed, reopening the controversy of what exactly happened in the skies over North Vietnam. It is the purpose of this thesis to attempt to reconcile the North Vietnamese records with that of the United States', and attempt to approach as closely as possible the truth of the air war over North Vietnam.

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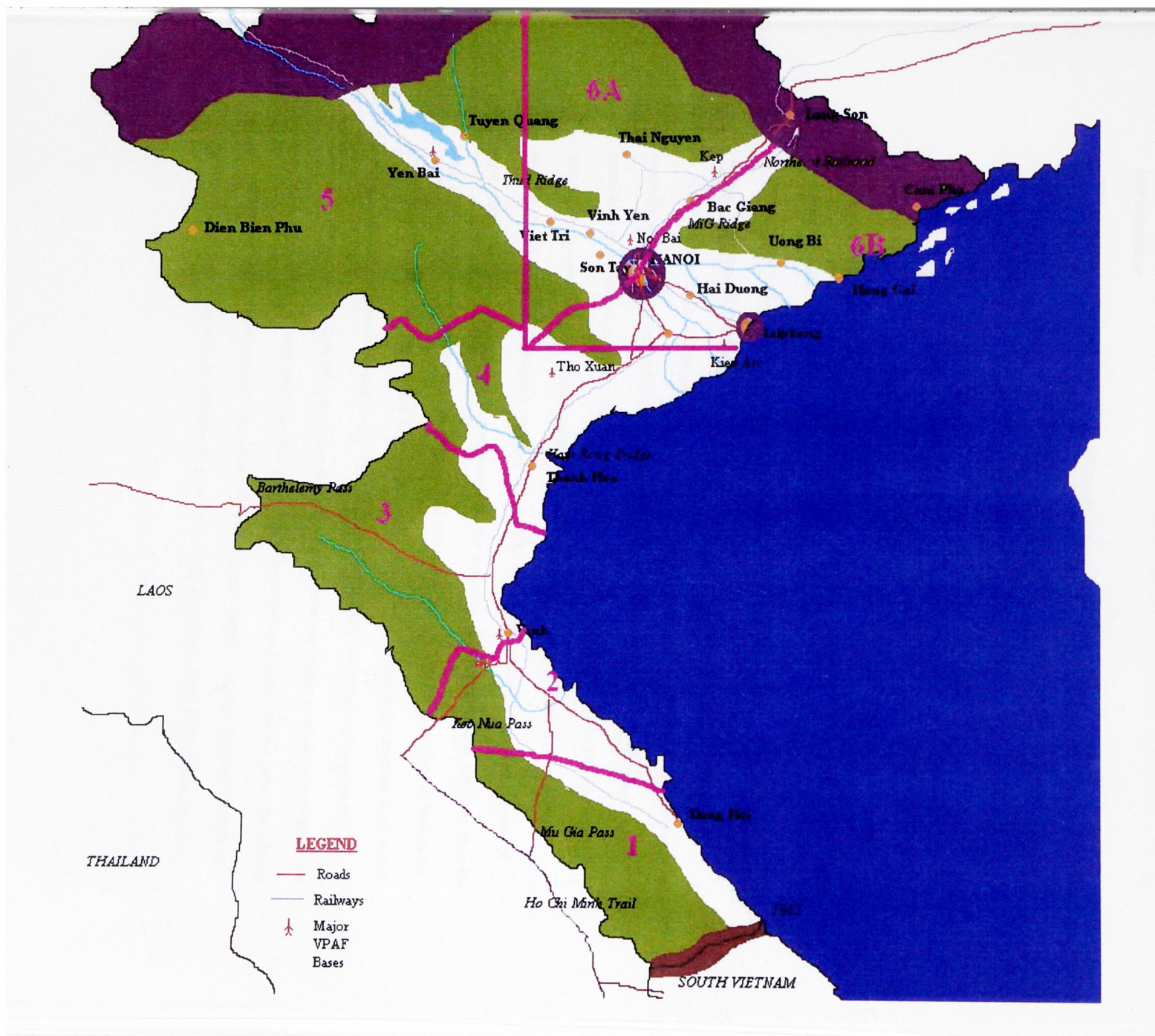
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Route Package Map of North Vietnam, 1965-1972







## ***Introduction***

The purpose of this thesis is to review the nearly 300 aerial battles that resulted in an aircraft being shot down, compare the American and Vietnamese accounts to each other, and get as close to what actually happened as possible. The bottom line of such research is simple—determine when, where, and if an aircraft got shot down.

Originally, this thesis was entitled “Air Combat Over North Vietnam and the Search for Truth.” Yet as Professor Philip West pointed out to me, this echoes Pontius Pilate’s famous question, “What is truth?” It is this very question that this thesis attempts to deal with: what is the truth of air combat over North Vietnam, what happened, and who is telling the truth: the Americans, the North Vietnamese, both, or neither? No historian can for certain say that one knows the absolute truth of any historical event. War is an extremely chaotic event, and Vietnam was worse than most. The air war over North Vietnam is no exception.

The first author to truly write an unvarnished report on the air war was Colonel Jacksel Broughton, who wrote *Thud Ridge* in the early 1970s, not long after his return from Vietnam and his subsequent court-martial for attempting to cover up a violation of the Rules of Engagement. Broughton and the men he had attempted to protect had been unfairly prosecuted, and Broughton’s *Thud Ridge* made no attempts to disguise the Johnson administration’s bungling in Vietnam. (Broughton would later publish a sequel of sorts, *Going Downtown*, in which he further lambasted the inequities of the court-martial, which by then had been overturned.) Aviation historian Lou Drendel was one of the first independent historians to look at the air war in general and air-to-air combat in particular. His *...And Kill MiGs* remains the seminal work on the subject, consisting of interviews with several “MiG Killers” and lavishly illustrated with photos and Drendel’s own paintings. Drendel admires the American fighter pilot and makes no attempts to disguise his bias, but his interviews, in some cases less than a year after the combat took place, are not edited for official use and are free of the “bureaucratese” that often colors after-action reports. Drendel updated the work in 1984 with more interviews of both Vietnam-era pilots and a reflection on the 1982 Gulf of Sidra Incident,

and again in 1992, once more adding a few more Vietnam accounts and updating for Desert Storm a year before.

The late Gene Basel started the trend of lower-ranking pilot recollections in 1982 with his *Pak Six*, and continued at a low level until about 1998, when a great number of these types of books came out—Ken Bell's *100 Missions North*, Al Lenski's *Magic 100*, Ed Rasimus' *When Thunder Rolled*, just to name a few—but the majority of these books were written by F-105 Thunderchief pilots, who flew the lion's share of Operation Rolling Thunder missions. Not many books were written by F-4 pilots or aircrew; the most prolific Phantom pilot/author, Mark Berent, writes novels. While air combat is often mentioned, only in Randy Cunningham's *Fox Two* is it central to the book, as Cunningham is one of two US Navy aces of the conflict—the other being his best friend and backseater, William Driscoll. Completely absent from historical narratives or research was the North Vietnamese People's Air Force. Word had filtered out from various Vietnamese sources that the VPAF claimed to have at least two pilots with more than sixteen aerial victories, but that was all. Vietnam was a closed society, and what little was published in official sources was so overlaid with propaganda that it was at best suspect. While World War II Allied veterans were able to talk to their adversaries almost immediately after the war's conclusion, building a base of mutual respect that remains to this day, it was simply not possible to interview, meet, or otherwise hear from the MiG pilots of the VPAF.

This changed in 1996. As diplomatic ties between Vietnam and the West slowly were reestablished and Vietnamese society began to open up more and more, Hungarian aviation historian Istvan Toperczner decided to find out the VPAF's story. His *Air War Over North Vietnam*, published in 1998, was the West's first glimpse into the VPAF's archives. While it still retained a patina of propaganda, the usual Communist references to American imperialism and "Yankee Air Pirates" were largely gone. It was quite an eye-opener to Western historians, and to American pilots, to see themselves through their enemy's eyes. Toperczner followed *Air War* with two more books in the Osprey Books' "Combat Aircraft" Series, *MiG-17 and MiG-19 Units of the Vietnam War* and *MiG-21 Units of the Vietnam War*; these two books further expanded on his previous research, and attempted to reconcile some of the controversies that had stemmed



from *Air War*. Ralph Wetterhahn, himself a MiG killer, journeyed to Vietnam in 2000 to interview a few of the men he had once flown against; his interview, published in *Air and Space Magazine*, was both informative and poignant.

Yet except for Toperczer's research and Wetterhahn's interviews, very little remains on the VPAF's side of the air war, and aside from Drendel, Robert Sherwood's *Fast Movers*, the official USAF after-action reports (collected in the Air University's *Aces and Aerial Victories*) and a handful of pilot narratives, not much more on the Americans' air-to-air combat experiences. Toperczer makes an effort to reconcile the two sides' histories, as do the researchers at the online Air Combat Information Group, but both have a singular flaw: both sides' accounts are generally taken as truth, when subsequent research have cast doubt on their veracity.

Access to American loss records is made simple by British aviation historian Chris Hobson's exhaustive *Vietnam War Air Losses*, which chronicles the events and cause of every one of the over 3000 American aircraft lost in Vietnam. Hobson draws on the official loss reports, but also adds his own research, making the book probably as accurate as one can get. By using Hobson as a baseline, I was able to void a few of the VPAF claims on the bases of geography and time—if a VPAF pilot claimed a F-4 shot down on 17 November 1967 over Hanoi, but the only F-4 lost in Southeast Asia on that date was lost near Saigon, or no F-4s or any other aircraft were lost on that date, then it is relatively simple to say that it was a bit of wishful thinking, mistaken identity, or plain propaganda.

Since the VPAF records, or at least those made available to Toperczer, rarely admit any losses at all, determining American claims is more problematic. In this case, the Byzantine bureaucracy of the USAF and US Navy actually come to the rescue of the historian. Both services critically examined every pilot's claim, comparing it against other pilot eyewitnesses, radar plots, gun camera footage, and still-classified ground intelligence sources. If the claim passed muster with the pilot's parent air wing, Seventh Air Force in Saigon, and then the Pentagon, it was allowed to stand; the Navy had a similar chain of command. As such, the American kill claims are generally accurate; if all the claims were allowed to stand, the Americans would have half again as many aerial victories as were claimed. Remarkably, there are a number of air

battles, namely the largest one of the war (10 May 1972) that are faithfully recounted in both American and Vietnamese narratives; the result of putting these two together is often spectacular, and greatly assist the historian in reconstructing the actual events.

When all is said and done, the Vietnamese pilots' claims take a considerable beating historically, and are nearly slashed in half. Given that Vietnam is still very much a controlled society and subject to the party line, this is perhaps not surprising. What is surprising is that many of the claims—namely the VPAF's top ace, Nguyen Van Coc—do stand the test of history, and that even a few of the American claims can be found, through the use of the spotty VPAF records, to be not entirely accurate.

No historian worthy of the name will ever claim to have the last word on any subject, and I am no different. Research may, and probably will, come out disproving parts of this thesis. This is a good thing: if my work gets others to think, get interested, and/or come forward with *their* version of events, then I have done my job as a historian.

*Author's Supplemental Note:* As it tends to happen in war, the opposing sides have different names for geographic locations. The most important of these in this narrative include the MiG base at Noi Bai, Tam Dao Mountain, and Yen Tu Mountain. The Americans knew these as Phuc Yen, Thud Ridge, and MiG Ridge respectively. I have chosen to use the Vietnamese name of Noi Bai, while using the American nicknames of Thud Ridge and MiG Ridge instead of Tam Dao and Yen Tu where appropriate. In the case of the Soviet-built R-3S missile, I have used the NATO designation of K-13 Atoll to avoid confusion between pilots' narratives and the thesis text. Vietnamese names are presented in generally accepted form, with surname first (as in Nguyen Van Coc, rather than Coc Van Nguyen).

Also, in the case of F-4 and F-105 Wild Weasel crews, which consist of two men, I use the pilot's name for brevity's sake in the combat narratives. This includes both men and is not meant as an insult to the backseater. When referring to the F-105 Thunderchief, I occasionally use its popular nickname of "Thud." Again, this is for the sake of brevity and in the spirit of most American writings on the air war over the North. I have also abbreviated the 432<sup>nd</sup> Tactical Reconnaissance Wing (TRW) to simply "432<sup>nd</sup> Wing," to

avoid confusion between fighter and reconnaissance wings; the 432<sup>nd</sup>'s status was provisional and included both combat and reconnaissance aircraft.

Finally, appendixes are provided at the end with a full listing of allowed and disallowed victory claims, a record of pilots and their verified claims, and notes on the aircraft described in this thesis.

## ***Background to War***

As this thesis deals with the air war and not the war in general, I will not attempt to present in detail how the United States and the Democratic Republic of (North) Vietnam came into conflict. The American involvement in Southeast Asia dates back before World War II, when a little-known Vietnamese nationalist named Ho Chi Minh was initially supplied with American arms to fight the Japanese. After the Japanese defeat in 1945, the French returned to the Indochina that they had ruled before the war, much to the consternation of Ho and his Viet Minh. The French were outmaneuvered by the Viet Minh and defeated at the Battle of Dien Bien Phu in 1954. The French left Indochina soon thereafter under the Treaty of Geneva, which divided Indochina into four parts: Laos, Cambodia, and North and South Vietnam. Ho Chi Minh set up a Marxist-Leninist government at Hanoi, naming North Vietnam the Democratic People's Republic of Vietnam. In the South, Ngo Dien Diem came to power and ruled over an ostensibly liberal democracy, the Republic of Vietnam. Barely three years passed after the French withdrawal before warfare erupted once more, as former Viet Minh troops remaining in South Vietnam, renaming themselves the Viet Cong, began increasingly to attack Diem's forces, with increasing success. Diem's often repressive government did not help matters by ruthlessly attacking Buddhist sects that were a threat to his position; Ho Chi Minh consolidated his power in the North through an even more ruthless, Stalinist collectivization drive.

Vietnam had been divided at the 17<sup>th</sup> Parallel, roughly along the lines of the Ben Hai River, and the area declared a Demilitarized Zone (DMZ). To bypass the DMZ, the North Vietnamese began supplying the Viet Cong forces through a network of trails in Laos and Cambodia, the Ho Chi Minh Trail. The presence of North Vietnamese troops in Laos violated a neutrality tenet of the Geneva treaty, and the support for the Communist Pathet Lao by North Vietnam and the Soviet Union led the United States to take the side of the Royalist forces. To forestall the airdropping of supplies, President John F. Kennedy activated Joint Task Force 116, which included US Air Force F-100D Super Sabre and US Marine Corps A-4C Skyhawk fighter-bombers. The Laos crisis ended with the negotiation of a new treaty, and JTF 116 was withdrawn

from Thailand, where it had been based. The North Vietnamese ignored the treaty and continued to move supplies down the Ho Chi Minh Trail, even if support of the Pathet Lao was somewhat curtailed.

Kennedy was determined to stop the spread of Communism in Southeast Asia, and South Vietnam seemed to be the best place for it. Support of the Diem government, which had been relatively low-key before 1961, now was stepped up and American advisors began arriving in South Vietnam. Some of these advisors were attached to Project Farm Gate, using modified A-26K Invader light bombers, A-1 Skyraider fighter-bombers, and converted T-28D Trojan trainer aircraft in the counterinsurgency role. Other Americans flew in Operation Ranch Hand, using C-123 Provider transports to spray Agent Orange defoliants on the jungle, in an attempt to deny the Viet Cong cover. These were the first instances of American pilots seeing active combat duty in Southeast Asia; the first American flight crew killed in Vietnam was the crew of a Ranch Hand C-123B on 2 February 1962.<sup>1</sup>

Diem's repression and corruption undermined his government, and a debacle at Ap Bac in January 1963 exposed serious problems inside the Army of the Republic of Vietnam (ARVN).<sup>2</sup> Matters came to a head in September 1963, when American aid was restricted in protest of a Diem crackdown on the Buddhists. Several coup attempts had already been made on Diem, but with the danger of losing American support, a group of ARVN generals plotted and successfully carried out a coup against Diem on 1 November. Diem was killed in the coup, which began a "revolving door" of generals and government officials through Saigon. Kennedy himself was assassinated in Dallas, Texas, on 22 November, but President Lyndon Johnson reaffirmed the American commitment to helping defend South Vietnam.

In spring of 1964, Pathet Lao troops, supported by North Vietnamese regulars, drove the Royalist forces from the Plain of Jars in central Laos. To keep the government in Vientiane from collapsing, American aid was sent, including several T-28Ds for counterinsurgency work. To help identify Pathet Lao troop concentrations, the US Air Force and US Navy were directed to fly reconnaissance sorties over Laos, using RF-101C Voodoos (USAF) and RF-8A Crusaders (USN), first under the codename Yankee Team. After an

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1 Chris Hobson. Vietnam War Air Losses. (North Branch, MN: Specialty Press, 2001), pp. 4-5.

2 Benjamin Donnelly. "Ap Bac." America's Wars in Asia Project, [www.awiadtl.ito.umn.edu](http://www.awiadtl.ito.umn.edu).

RF-8 was shot down by Pathet Lao gunners in June 1964, Johnson authorized Operation Barrel Roll, which sent USAF F-100s and USN F-8s on retaliatory strikes, with mixed results.<sup>3</sup>

While the war in Laos went on at a relative low intensity, the war in South Vietnam began to heat up. Viet Cong attacks were becoming increasingly common, and on occasion South Vietnamese commandos retaliated by raiding North Vietnamese installations on the shores of Tonkin Gulf. Often, US Navy destroyers, as part of Operations Plan 34-A, would cruise in international waters off North Vietnam, making radio intercepts and gathering electronic intelligence that resulted as a part of these raids. On 2 August 1964, the destroyer USS *Maddox* was attacked by four North Vietnamese torpedo boats. The *Maddox*, with the help of F-8 Crusaders from the carrier USS *Ticonderoga*, drove off the Vietnamese boats with very slight damage to the *Maddox*. What prompted the North Vietnamese attack was uncertain, but the *Maddox* was reinforced by another destroyer, *C. Turner Joy*, the next day to discourage any further attacks. The night of 4/5 August was rainy, and during the night both destroyers reported they were under another attack. To this day, no one is sure if the two ships were indeed attacked, but in response, Johnson ordered retaliatory airstrikes on the torpedo boat base at Hon Gay and fuel storage at Vinh, in Operation Pierce Arrow. These strikes were fairly successful, though North Vietnamese air defenses cost the Americans two aircraft. On 10 August 1964, the US Congress passed the Gulf of Tonkin Resolution, which gave President Johnson a free hand to defend South Vietnam, and attack the North. The air war had begun.

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<sup>3</sup> Hobson, pp. 9-14.

## ***Trends in Air Warfare and Vietnam, 1953-72***

### ***Introduction***

Following the Korean War, aircraft designers came to two conclusions: fighter design had to emphasize speed over maneuverability and visibility, and dogfights were a thing of the past. As a result, modern designs such as the American F-4 Phantom II and the Soviet MiG-21 became more streamlined and dependent entirely on missile armament. Air combat training ceased in the United States. Vietnam was to prove the aircraft designers wrong, as the missiles were unreliable and close-range dogfights the norm, rather than the exception. Older, gun-armed fighters such as the MiG-17 and the F-8 Crusader were doing better in combat than newer fighters. As the war progressed, both sides reevaluated their aircraft, rearming them with internal guns, and the United States made improvements in tactics.

The “arena” of North Vietnam was divided up into six Route Packages, in which Route Package Six–Pak Six–was the most important, as that was the location of Hanoi and Haiphong. While the VPAF’s war aim was simple, to defend their country from American airstrikes, the United States’ aim of forcing Hanoi to negotiate an end to the war was more problematic. Greatly increasing the difficulty were the Rules of Engagement placed on aircrew by President Lyndon Johnson and Secretary of Defense Robert McNamara. These ROE so restricted targets that it placed American aircrew in danger of their lives, and largely nullified the effects of Operation Rolling Thunder on North Vietnam.

A goal shared by all American pilots, and probably the North Vietnamese as well, was to attain the coveted title of ace. The title has existed since World War I, and aces represent the top percentage of fighter pilot skill. Becoming an ace meant shooting down five aircraft; attaining the goal required great skill, tenacity, situational awareness, and luck. Out of the hundreds of fighter pilots on both sides of the war, only a tiny percent would ever become aces. Of the rest, fully forty percent would become the aces’ victims.

### ***Air Warfare and Aircraft Design***

World War II was the pinnacle of air combat—not surprisingly, since it was the largest, most expensive, and most devastating war ever fought by mankind. It is very unlikely that any pilot will ever match the record of 352 aircraft shot down by German top ace Erich Hartmann, and also unlikely that any American pilot will match even the forty aircraft shot down by the United States’ top World War II ace, Richard Bong.

Air combat has been around since the early days of World War I, and most of the tactics that continue to be taught today have their origins in the Great War. One of the lessons taught to the US Navy’s famous “Top Gun” school is the *Dicta Boelke*, a series of seven rules drawn up by German ace Oswald Boelcke, in 1916. The *Dicta Boelke* sets out a primer on how to win an air battle: one must position oneself in the sun; attack quickly and without warning, if possible; fly in groups; cover each other in combat; and a few others. The lessons were effective: one of Boelcke’s students was Manfred von Richthofen, the “Red Baron” who terrorized Allied fighter pilots over the Western Front. Pilots in World War II on both sides remembered, or in some cases painfully relearned, these lessons. Even with the advent of jet combat, the rules did not change, even if speeds did. Several aces of World War II—among them Francis Gabreski of the United States and Yevgeny Pepelayev of the Soviet Union—were able to make a smooth transition from piston-engined propeller planes to turbojet fighters. The lessons of the Korean War further reinforced the lessons learned in the two World Wars. The principal fighters of the Korean conflict—the F-86 Sabre on the American side, and the MiG-15 on the Communist—both emphasized maneuverability, and in both aircraft, the pilot looked at the world through a “bubble” canopy that gave superb all-around vision.

The 1950s, however, seemed to change the rules. When engineers from Lockheed, Douglas, and other American aviation companies asked US Air Force and Navy fighter pilots what they wanted, the answer was usually “more speed!” The companies complied, turning out fast fighters like Lockheed’s F-104 Starfighter, the North American F-100 Super Sabre, and the Grumman F11F Tiger. Maneuverability was sacrificed in favor of better performance at high altitude and speed, which went over the Mach 2 barrier less than a decade after Charles Yeager had first flown faster than the speed of sound. The Soviets, for their part, followed suit, producing the Mikoyan-Gurevich MiG-21 and the Sukhoi Su-7.



Fighter tactics became less prevalent, at least in the West, because it was assumed that speeds and technology had outstripped man's ability to keep up. The development of air-to-air missiles, further influenced the opinion that the dogfight was a thing of the past. Future engagements would be decided beyond visual range (or BVR), using radar-guided and heat-seeking missiles. This assumed that future wars would not be decided quickly in the form of nuclear weapons. Such a trend clearly pleased US Air Force and Navy procurement personnel, since it meant that, with less air-to-air "hassling" in training, accident rates would drop. It also pleased those in power in the USAF hierarchy at the time, the "bomber generals" who had built Strategic Air Command into the centerpiece of the American armed forces. Still, neither the United States nor the Soviet Union, or smaller nations such as Sweden or France, went as far as the United Kingdom, which declared manned aircraft "obsolete" and cancelled all future manned programs. The fighters and fighter-bombers that would fight over North Vietnam were products of early 1950s and late 1950s aircraft design, which were radically different. The principal American aircraft of the conflict would be the USAF's McDonnell Douglas F-4 Phantom II and the Republic F-105 Thunderchief; the US Navy also used the F-4, but supplemented its fighter squadrons with the LTV F-8 Crusader, while attack units initially used Douglas A-1 Skyraiders and A-4 Skyhawks. The North Vietnamese, for their part, would be supplied with Russian-built aircraft, or Chinese copies of such, all Mikoyan-Gurevich aircraft: the MiG-17, MiG-19, and MiG-21.<sup>4</sup>

### *Fighter Tactics and Training*

Since the dogfight was regarded as something that belonged in history books, the art of fighter combat was simply not taught to American fighter pilots and was even actively discouraged. All the pilots had to do, according to higher command, was go aloft, fire off their missiles, and wait for the destruction of their targets, which would almost certainly be nuclear bombers. This assumption was rather popular with higher

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<sup>4</sup> Francis Crosby. A Handbook of Fighter Aircraft. (London: Hermes House, 2003), pp. 28-29.

command, because a lack of fighter training meant that there would be lower peacetime accident rates and therefore, less bad press for either the USAF or the Navy.

Because fighter pilots are, by nature and tradition, rather independent-minded, fighter training still took place—on the side, and secretly. Pilots who wanted to engage in friendly “ratracing” simply found an empty part of sky and went at it. Some wing and squadron commanders quietly encouraged such training and turned a blind eye to it; others ruthlessly purged anyone who was caught in the act. Except in Europe, where American pilots could count on finding British and French opponents flying dissimilar aircraft, fighter pilots would almost always end up training against each other, flying the same sort of aircraft. Pilots learned to anticipate the opponent’s moves based on what the aircraft was capable of—a F-8 pilot, for instance, knew what the other pilot’s F-8 could and could not do. This engendered a dangerous complacency among American pilots, who usually had no idea what an opponent not flying the same aircraft was capable of. Some pilots did try to gather information on their Soviet adversaries, and so knew that MiG fighters were usually more maneuverable than American aircraft, but not as fast. Therefore, especially in the case of the F-4, “vertical” tactics were developed to take advantage of the F-4’s acceleration in the climb and in a dive.<sup>5</sup>

Soviet pilots, and by extension, the North Vietnamese they trained, were less restricted on learning fighter tactics. Though emphasis was given (especially to MiG-19 and MiG-21 students) on interception of American bombers, enough training remained in the Soviet curriculum on how to dogfight. Since the Western press and aviation companies freely published the flight parameters of their aircraft, the Soviet flight schools knew exactly what the opposing aircraft was capable of, and so could train their pilots on what to do when confronted with a F-4 rather than a F-8, though these were sometimes not passed on to the North Vietnamese students. However, Soviet pilots and those they trained had different limitations than their American contemporaries. American pilots were generally taught to think for themselves—while an American radar operator would tell the pilots where to go to find the enemy, they would not attempt to go further than that. Soviet radar operators, on the other hand, were trained to not only tell the pilots where the

enemy was, but what speed to set, when to drop their external fuel tanks, when to open fire, and when to disengage. Under strict GCI (Ground Controlled Intercept) control, Soviet-trained pilots were reduced to little more than human extensions of the radar controller's will—button pushers. This grated on many pilots, who were just as independent-minded and high-spirited as their American opponents, but they had less of an opportunity to argue with the system than the American pilots. An American pilot who complained about restrictions could, at worst, face a court-martial; a North Vietnamese pilot who complained too loudly could be stripped of his wings and sent south as a porter, with a life expectancy of less than a week, or simply shot. Luckily for the North Vietnamese pilots, the lessons of combat did lead to some loosening of the strings—the more successful a pilot, the more he could get away with.

One final advantage the Americans had was experience. American pilots who fought in Vietnam, on average, were older and had more time flying their preferred aircraft than the North Vietnamese. They were, therefore, usually quicker to adapt to the situation and knew their aircraft better than the VPAF pilots, who were sometimes fresh out of flight school. Rarely did an American pilot or crewman come to Vietnam without having put in at least a year of flight training; a few pilots even had combat experience in Korea or World War II. No North Vietnamese pilot had more than a year of training in 1965, and none had served in any conflict prior to that date. Moreover, the extreme need of pilots for the VPAF resulted in accelerated flight training, with the result that their Soviet instructors allowed them to make mistakes that would wash out a Hungarian or Polish trainee.<sup>6</sup>

### *The "Arena"*

"Looking at a map of the country, you see it resembles a Colonel Sanders drumstick, original recipe. To simplify navigation and planning, we divided the drumstick into sections we called [Route] Packages. Being Americans, we quickly reduced 'Package' to 'Pak.' From south to north, the country was sectioned into Pak One, Two, Three, and Four. The fat part, up north, was split in two—Pak Five to the west and Pak Six in the east. Pak Six contained all the good stuff—the airfields, the headquarters, the main industries, and the capital city, Hanoi."<sup>7</sup>

--G.I. Basel, *Pak Six*

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<sup>5</sup> George Hall. *Top Gun: The Navy's Fighter Weapons School*. (Novato, CA: Presidio Press, 1987), p. 25.

<sup>6</sup> Istvan Toperczer. *MiG-17 and MiG-19 Units of the Vietnam War*. (Oxford: Osprey Publishing, 2001), pp. 16-17.

<sup>7</sup> Gene I. Basel. *Pak Six*. (San Diego, CA: Creative Writers, 1982), p. 11.

As Basel writes, the American bombing effort, from 1965 to 1973, would be concentrated in those “Paks.” Each Pak had its share of targets, which were allocated according to need and ability to hit, and, more likely, political impact. Each also had its share of dangers.

Pak Three and Five had relatively little military relevance, with only scattered supply routes and centers. Pak One and Two, on the other hand, held the northern terminuses of the infamous Ho Chi Minh Trail, at Mu Gia and Ban Kua (also known as Ban Karai) Passes, as well as the important North Vietnamese Army bases at Dong Hoi and the largest city in the North Vietnam “panhandle,” Vinh. Pak Four was the location of the equally infamous Thanh Hoa area, dominated by the Ham Rong Bridge. This bridge was the chokepoint for the North Vietnamese supply lines heading south, where Route One narrowed to cross the Song Ma River. Aside from the ever-present antiaircraft guns (“flak”) and a single, particularly deadly surface-to-air missile site at Vinh, these Paks lacked modern defenses, and MiG fighters rarely ventured south of Thanh Hoa due to range and political considerations in the early part of the war.

Pak Six, as Basel relates, was the nerve center, main supply point, and most heavily defended area in North Vietnam—and was soon to become the most heavily-defended spot on the planet. Antiaircraft guns abounded, from small arms to radar-directed artillery, as did SAM sites. The main MiG bases at Noi Bai (known to the Americans as Phuc Yen) and Kep were in Pak Six, and so were North Vietnam’s largest cities—Hanoi, the capital, and Haiphong, the country’s main port. The railroads and highways coming from China came together in Hanoi, crossing the Hong (Red) River on the Paul Doumer Bridge (so named for a French governor of the colony) and crossing the Kinh (Black) River over the Canal des Rapides Bridge just east of the city. Russian and other Eastern Bloc ships docked at Haiphong’s extensive facilities. Despite being the location of most of North Vietnam’s political infrastructure and two important supply chokepoints, both Hanoi and Haiphong were off-limits to airstrikes, a restriction imposed by President Lyndon Johnson and Secretary of Defense Robert S. McNamara, who were almost desperately afraid of broadening an increasingly unpopular war. Johnson and McNamara, along with the State Department, feared both bringing the Soviet Union and China into the war and domestic opposition at home, if unrestricted airstrikes were allowed. The most feared result was the death of Soviet or Chinese advisors;

civilian casualties would be politically detrimental in places both foreign and domestic. The continual pleas of the Joint Chiefs of Staff that unrestricted warfare would shorten the war and therefore avoid civilian casualties were ignored.

In *Beyond the Wild Blue*, his history of the US Air Force after 1947, author Walter Boyne accurately summed up the detrimental impact of McNamara on the American war effort, which fully extended to the zone of air-to-air combat:

“In effect [McNamara] planned to educate the North Vietnamese, giving them a logical reason to accede to American policy. The education was a simple carrot-and-stick: concessions for good behavior and varying degrees of punishment for bad behavior. This arrogant philosophy, a byproduct of the administration’s complete ignorance of the psychology of the North Vietnamese, derived more from Dr. Spock than Clausewitz....McNamara continued to insist to the very end of his tenure [29 February 1968] that the war was a simple rebellion best handled within the confines of South Vietnam. McNamara was convinced that the North Vietnamese were a mere pawn for Red China...a cursory study of the history of the area would have made it clear that North Vietnam had its own agenda, one that went back to its earliest roots, and that Ho Chi Minh was determined to unite Vietnam for his own regime and not for any other.

“With the fussy precision of a dedicated executive accountant, McNamara declaimed that the war in Vietnam was to be a laboratory for handling counterinsurgency. McNamara’s all-knowing attitude permeated his staff, who came to regard advice from senior military officers as a mere irritant...many thousands of miles away from the scene of combat, the leaders in the Department of Defense and in the administration persisted in regarding the enemy as errant schoolboys who could be reformed by a combination of inducements and punishments. Yet it should have been obvious to McNamara and Johnson...with their massive resources of research and intelligence, that the North Vietnamese and their National Liberation Front auxiliaries were formidable opponents who had been fighting for twenty-five years, battling the tough Japanese and defeating the French.”<sup>8</sup>

Since the pilots were also hemmed in by a Washington-imposed thirty mile buffer zone along the Vietnamese-Chinese border (to further reduce the chances of a collision between American and Chinese forces), mission planning was severely restricted, even when not taking into account the Rules of Engagement. USAF forces, based principally at four bases in Thailand—Takhli, Korat, Ubon, and Udorn—flew routes northeast over Laos, where they would rendezvous with aerial refueling tankers, then turn roughly east over northeast Vietnam. Once they reached the head of the Red River valley, the USAF flights would turn southeast, using Tam Dao Mountain to cover their approach from ground-based Vietnamese radar. Tam Dao rapidly became known as “Thud Ridge” because of its heavy use by F-105s,

and because of the high numbers of Thuds lost there. Egress routes were either directly west into the relatively safe zone of Pak Five, or southeast towards the Gulf of Tonkin. If an aircraft was hit, the pilot could eject over Pak Five with a chance of being rescued by the brave and highly efficient search and rescue (SAR) forces based at Nakhon Phanom in Thailand, or at forward sites in Laos (which, officially, did not exist). If the pilot made it to the Gulf of Tonkin and was not severely injured in the ejection, pickup by the US Navy's dedicated rescue destroyers and helicopters was an almost certainty. If an aircraft went down in Pak Six, especially over Hanoi, rescue was impossible, as helicopters could not survive there. Pilots who were captured were destined for almost certain abuse and torture, usually at the infamous Hoa Lo Prison in downtown Hanoi, known to the Americans as the Hanoi Hilton. So feared was the Hilton that some pilots preferred death to capture, and rode their aircraft into the ground or engaged in suicidal gunfights with Vietnamese militia, who were known to kill Americans on sight. Since the USAF was more or less restricted to one avenue of attack, the North Vietnamese quickly figured out where they could expect the strike forces to appear, and even at what time—because of political and operational necessities, the Americans habitually launched a strike in the morning and another in the afternoon, which provided the Vietnamese with a lunch break in which to rest gun crews and refuel their fighters. (Night attacks were launched against the Vietnamese, but these were uncommon during Rolling Thunder, due to the lack of all-weather attack aircraft.) The US Navy, because of its position in the Gulf of Tonkin, was less restricted as to ingress routes, and its aircraft were somewhat harder to intercept, though they also kept to the morning-afternoon strike schedule. The Navy's attack routes usually were a hyperbola, beginning and terminating at "feet dry" and "feet wet" when the aircraft crossed into and out of North Vietnam, respectively, at the coast.

The Vietnamese People's Air Force (*Khong Quan Nhan Dan Viet Nam*) also faced geographical difficulties. The proximity of the Seventh Fleet's carriers usually meant that warning time for a US Navy raid was barely enough time to get fighters scrambled and in the air—and that was if conditions were perfect. There was more raid warning time for USAF raids, which came in over Laos, but again this was not foolproof. Radar coverage in most areas of North Vietnam was limited to about twenty miles; altitude

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<sup>8</sup> Walter Boyne. Beyond the Wild Blue. (New York: St. Martin's Press, 1997), pp. 141-143.

coverage, because of the mountainous terrain, was generally limited to above 6000 feet. Continuous coverage above a thousand feet was limited to the coastal plains and the Red River valley. The solution was to place radars on mountaintops, but even this was difficult, because of the limited number of sets and the thick jungle. Detecting aircraft at low-level was left largely up to a civilian observation corps, but this was by no means reliable. In fact, the most reliable early-warning system the Vietnamese had was the Americans' tendency to use the same flight-ingress and strike times day in and day out.<sup>9</sup>

The VPAF faced a problem not unlike that of the Royal Air Force during the Battle of Britain. Like the RAF, they had the disadvantage of an enemy which was generally better equipped, better trained, and had more aircraft than they did; the VPAF shared the RAF's inability to quickly replace the loss of pilots. However, they also shared the advantages that the RAF enjoyed in fall 1940. This included the fact that their enemy was restricted to attacking from a certain direction and was limited by fuel constraints as to how long they could engage in air combat (though, with the advent of aerial refueling, this was much less of a problem to the Americans than it was to the Germans); both the United States and the Third Reich, however distasteful the comparison may be to American readers, also faced the problem of political isolation, a problem exacerbated for Johnson by a very efficient and skilled North Vietnamese and Soviet propaganda machine. While the United States never engaged in the sort of carpet bombing against civilian targets as the Luftwaffe did during the Blitz of 1940, Hanoi made sure that the rest of the world, and a large segment of Americans, would be convinced otherwise.

Operationally, the North Vietnamese shared with Britain other advantages. Vietnamese ground based radar, like the legendary Chain Home stations along the Channel coast, could detect the oncoming American strike forces and give early warning to both pilots and gun crews. If a MiG pilot got shot down and was able to bail out, he would land in friendly territory and, if he was uninjured, could be back in action the next day. VPAF pilots also could theoretically find some help from antiaircraft gun and missile batteries, which could shoot down any pursuing Americans. This idea of "flak traps" was less effective than one might think, however, as air defense crews were notorious for firing at anything that flew; friendly

fire was a problem that never was fully solved by the Vietnamese. (In 1966 alone, two MiG-21s were shot down by SAM batteries.)<sup>10</sup> Finally, the VPAF pilots had the moral advantage of defending home and country—American bombs were being aimed at their countrymen, and unlike the North Vietnamese troops in South Vietnam, VPAF pilots enjoyed an immediate morale boost if they could force an American strike force to jettison its bombs early or if they claimed several American aircraft shot down. Their political goal was simple and easy to understand: defend their home. American pilots, on the other hand, had a far more muddled goal (defend South Vietnam through disabling North Vietnam), and both the often ludicrous political limitations from Washington and an increasingly vocal opposition at home steadily chipped away at pilot morale. Indeed, pilot turnover through resignation was nearly as attritious as pilot casualties, and, given the extreme limitations imposed on them, the mere fact that American pilots continued to fly into such hostile territory is no mean feat. Especially interesting is the fact that many pilots took so many chances to achieve the goals of a mission, even if they did not personally believe in the war itself.

### *The Mythology of the Ace*

The “ace” is a concept that originated with the French during World War I, and was so named because of the number of aerial victories needed to achieve that status—five. The title of ace was a way of honoring an elite pilot who not only survived but excelled. France and Germany both revered their aces—though in Germany, aces were called *Experten* and the magic number was ten, not five—while England initially made no such recognition. The United States did not officially acknowledge their aces until nearly the beginning of World War II. Nonetheless, American aces, among them the famous Eddie Rickenbacker and the maverick Frank Luke, had the same respect of their peers and fascination of young boys as their French, German, and English contemporaries. World War II only increased this fascination, and the sheer amount of warfare led to a tenfold increase in aces all over the world. To be an ace meant that the pilot was very

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<sup>9</sup> Toperczer, *MiG-17 and MiG-19 Units*, pp. 20-21.

<sup>10</sup> Toperczer, *MiG-17 and MiG-19 Units*, p. 22.



skilled, very lucky, or both; besides respect in a profession that did not give such a thing easily, it also meant likely promotion and medals—it is no coincidence that most of the “top” American aces of World War II were also awarded the Medal of Honor. By Korea, the “ace race” was so competitive that it actually became a problem; pilots got “buck fever” or became “MiG hungry” and took too many chances, getting killed in the process of achieving more kills to become the top ace.

Fighter pilots, the world over, are revered as cultural heroes and icons. The “few” so honored by Winston Churchill in his famous speech were fighter pilots. Germans find in their World War II aces a nonpolitical hero unblemished by the horrors of the Nazi era. Japanese *anime* is generally silent regarding their controversial war history, but expresses the mythos in several dozen science-fiction epics. Russian fighter pilots still have a place in many Russians’ hearts. Americans, of course, tend to see fighter pilots as the heirs to the tradition of the Western gunfighter, and movies abound with them—*Dawn Patrol*, *Pearl Harbor*, *The Bridges at Toko-ri*, and *Top Gun* to name but a few. Aces, therefore, represent the pinnacle of an already elite profession. For that reason, it is no wonder that so many American pilots describe the feeling of “We hoped that we’d find MiGs” or “I wanted that MiG, bad.” Even some of the quotes made directly after a victory seem cold-blooded—Robin Olds can relate how the pilots of the 8<sup>th</sup> Tactical Fighter Wing laughed when a mortally wounded MiG-17 crashed into a Vietnamese flak battery, or when a F-8 pilot asked his wingman after both shot down MiGs, “I saw yours; did you see mine?” It seems more like a fraternity discussing a prank or a football team comparing touchdowns. This is not entirely inaccurate—many fighter pilots have that very kind of background before they join the service, and that sort of aggressiveness is what instructors look for in prospective fighter pilots. It is necessary for a pilot’s survival.

The ace mythos permeates a fighter pilot’s career from the first day he enters flight school. Few pilots are actively bloodthirsty; most fighter pilots will do their best to shoot down their opponent, but also hope he ejects and will not engage in strafing the opponent in the parachute. The idea of saluting a foe in his parachute as a worthy adversary is more appropriate to Hollywood than the savagery of air combat, but like many movie clichés, it exists because it has happened. If death happens, that is part of war, and pilots correctly point out that the opponent would not mourn any more or less than the victor were the situations

reversed. Probably for this reason, aerial victories are most often referred to as “kills,” through a moral smokescreen of killed aircraft rather than killed pilots, and the laughter may be a necessary psychological defense against a sense of guilt or a fear of death. Every fighter pilot knows that tomorrow, it might be he who crashes in a fireball and his enemy who tells the story over a beer at the bar.

Aces in Vietnam were a political time bomb for the United States and important propaganda-wise for the North Vietnamese. Added to the American “ace question” was who to award the victory to, in the case of a F-4 crew—the pilot or the radar operator? Both were equally responsible. At first, each man was given a half-credit per kill, but later this was changed so that both men were equally awarded a single victory each. With the advent of Nixon’s administration and the relaxing of the Rules of Engagement, there was no controversy, and the Vietnam War would produce five aces—three from the USAF, two from the US Navy. For the North Vietnamese, the idea of “five down and glory” was less important than how many aircraft a pilot eventually shot down and how long he survived. The ace designation is largely imposed by Western writers, though surviving VPAF pilots given that title do not seem to mind. If a VPAF pilot scored a single victory, Hanoi’s propaganda would quickly increase that to two or three, to buck up the home front morale and further engender the impression of a David versus Goliath struggle. This led to grossly inflated numbers of VPAF aces (nine, at the time of this writing) and scores.

There is one final note to the ace mythos. In studies done immediately after Vietnam and since, research has determined that aces are a rare breed—less than one percent of total pilot strength during wartime. Yet fully forty percent of all aerial victories will be scored by this tiny minority—meaning that most aces simply get better while most pilots are lucky if they achieve one or two kills. This also means that almost half the pilots in a given war are destined to be fodder for the few aces flying. Why this is true is unknown (the only empirical evidence that can be found is that most aerial victories are over in the first five seconds of combat, and aces tend to only get better at firing first and without warning), but it is a fact in every aerial conflict since World War I. Vietnam was no exception.

## ***1964-65: The Air War Begins***

### *Introduction*

The air war over North Vietnam began small—a single VPAF T-28 shooting down an Air America C-123 transport. Though American airstrikes began gradually with Operations Barrel Roll, Flaming Dart, and the opening attacks of Rolling Thunder, the VPAF was kept away from engagements with the Americans, as numbers were still too small and the risks of losing the entire force too great. As American attacks on the vital Ham Rong Bridge intensified, the VPAF was sent into action in April 1965. Initial clashes were inconclusive for both sides, but the VPAF scored their first aerial victory on 4 April. The USAF scored its first kill in the same air battle.

For the rest of the year, the sides sparred with each other in comparatively small dogfights. The Americans came away the winners in most of these air battles, but even the victories exposed gaps in American training and deficiencies in American technology. Worse, the ground defenses of North Vietnam were becoming more sophisticated and deadly, even as the ROE stopped attempts to dismantle the defense network before it became completely operational. The VPAF, for its part, gained experience, but this was mitigated by the loss of nearly half its available force in air combat.

### *Flaming Dart and Rolling Thunder*

For some months, special operation missions had been jointly run by the South Vietnamese Air Force (SVAF) and the United States, usually using C-123 Providers in SVAF colors or those operated by Air America, the CIA's funded "airline," and flying by night. At the time, VPAF nightfighting capability was nonexistent; while the VPAF had MiG-17F fighters, the pilots were still training in China. The VPAF was ordered to find a solution, and fast.

As it turned out, it was an American-built T-28D Trojan that provided that solution. Flown to North Vietnam by a defecting Royal Laotian Air Force pilot in September 1963, the Trojan had been put in storage for a lack of spare parts. This was overcome by salvaging SVAF Trojans that had been shot

down near the DMZ, and the aircraft was put back into service. Three VPAF instructors were tasked to fly it, the most experienced being Nguyen Van Ba. The air defenses of North Vietnam were still being trained and outfitted (vindicating the JCS' opinion that North Vietnam was, in 1964-65, still vulnerable to the hammer blow they had in mind). Van Ba, without any radio guidance from the ground, flew only on clear, moonlit nights, which meant chances of interception would be more accident than planning. However, the Providers were being flown on the same route every time—a failure of tactics that was to plague American air operations for the entire conflict—so Van Ba at least had a good idea of where to look.

At 11:30 PM on the night of 15 February 1964, North Vietnamese radar detected an aircraft crossing the North Vietnamese-Laotian border not far from Barthelmy Pass. Van Ba was scrambled from Noi Bai and headed southwest. Luckily for him, there was a full moon that night, and a little after 1 AM, he spotted a C-123 flying towards the Laotian border. Van Ba closed to within a thousand feet and opened fire. The Provider, apparently never seeing the T-28, dived and crashed into dense forest. Only one of the crew, a South Vietnamese crewman, survived to be captured. Van Ba returned to base; the T-28 was never used again for combat operations.<sup>11</sup> American postwar records list no C-123s lost on this date, but as the aircraft was most likely either SVAF or Air America (USAF aircraft were not allowed to fly missions into North Vietnam as of that date), it is reasonable to assume that Nguyen Van Ba indeed did score the first VPAF air victory.

Immediately following the Pierce Arrow strikes on Hon Gay and Vinh, the North Vietnamese Air Force recalled their pilots and aircraft from China; the 921<sup>st</sup> Fighter Regiment returned to Noi Bai on 6 August 1964, immediately putting four of the 34 aircraft available on alert standby. The VPAF's commander, Brigadier General Van Tien Dung, realized that their pilots were still green; if they were committed in a mass attack against American fighters, they would not last long. Nor would they survive if the Americans immediately struck Noi Bai, but President Johnson's hesitancy in striking any

targets around Hanoi, for fear of killing Soviet and Chinese advisors, bought the VPAF time to give their pilots additional training. The 921st's MiG-17 pilots exercised constantly, but were carefully kept out of air combat.<sup>12</sup>

On 24 December 1964, Viet Cong units attacked US Army barracks in Saigon, following with another attack on Pleiku on 7 February 1965. Johnson immediately ordered a retaliatory strike in the form of Operation Flaming Dart, attacking North Vietnamese barracks at Dong Hoi; these missions were flown by US Navy aviators from USS *Coral Sea*, *Hancock*, and *Ranger*. The barracks were heavily damaged in the strike, despite poor weather and the loss of a single A-4C Skyhawk. Hanoi was not impressed or cowed; VC hit American facilities at Qui Nhon on 10 February. Johnson duly ordered Operation Flaming Dart II the next day, once more targeting North Vietnamese Army barracks near Dong Hoi. Again heavy damage was incurred despite poor weather. Flaming Dart II was to prove no more effective at persuading Hanoi to give up than its predecessor, and both Johnson and McNamara apparently realized it. Operation Rolling Thunder was ordered on 13 February, with missions to commence in early March. However, both the President and the Secretary of Defense refused to abandon the policy of gradualism, authorizing the first strikes only below the 20<sup>th</sup> Parallel. It was hoped that by moving the bomb line gradually northward towards Hanoi and Haiphong, the North Vietnamese might see the light and negotiate. This was only the first of many misconceptions shared by Johnson and McNamara, with fatal results for many American aircrew.

The first Rolling Thunder strike was aimed at the Quang Khe naval base and an ammunition dump at Xom Biang; only US Air Force units based in Thailand and Da Nang participated, and five aircraft were lost in the first two minutes of the raid. The US Navy launched its Rolling Thunder strikes on 15 and 26 March, attacking first an ammunition dump at Phu Qui and then radar sites, namely the one on Bach Long Vi Island, 70 miles southeast of Haiphong in the Gulf of Tonkin. Four aircraft were lost, and on 29 March, the Navy struck at Bach Long Vi again, losing another three aircraft.

Meanwhile, the VPAF had yet to make much of an appearance, other than occasionally shadowing a strike formation, despite the fact that Rolling Thunder was obviously going to be a sustained operation. The VPAF high command examined the early Rolling Thunder strikes, namely the two Bach Long Vi operations. The routes used against the target were the same each time, which would greatly ease the chances of a successful intercept. Moreover, the American aircraft would be carrying bombs, which would cut into their maneuverability, and often the identity of the target was given away by the presence of American reconnaissance aircraft in the area. The VPAF received permission to try an intercept, but only on two conditions: one, the intercept would not be launched unless the Americans attacked north of the 20<sup>th</sup> Parallel (Bach Long Vi was too far offshore), and that the VPAF must be successful on the first try. The latter was for both morale and political purposes. Though the Vietnamese pilots had discussed using the Russian *taran* (ramming) attacks if necessary, this was forbidden by General Van Dung, as aircraft were too valuable to waste.<sup>13</sup>

On 3 April 1965, North Vietnamese radar detected two RF-101C Voodoo reconnaissance aircraft around the Thanh Hoa area, above the 20<sup>th</sup> Parallel. The 921<sup>st</sup> Fighter Regiment's pilots were put on alert for an intercept. Just north of Thanh Hoa was the Ham Rong (Dragon's Jaw) bridge, which was a target that *had* to be defended. Route 1, the coastal highway, crossed the Song Ma River over the Ham Rong bridge, and Route 1 was the main supply route from China to the Ho Chi Minh Trail. The Ham Rong bridge, rebuilt by North Vietnamese and Russian engineers from a French bridge destroyed by the Viet Minh, was 540 feet long and anchored by two 40 foot thick concrete abutments, with nine smaller ones in the river itself. The bridge itself was concrete reinforced with steel. USAF intelligence considered the bridge "overbuilt," but the result was an extremely tough design resistant to bombs.

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<sup>12</sup> Toperczer, MiG-17 and MiG-19 Units, pp. 12-13.

<sup>13</sup> Toperczer, MiG-17 and MiG-19 Units, p. 26.

In fact, three strikes were planned on the Ham Rong bridge that day. The first, by the USAF, was to be the largest, consisting of 31 F-105D Thunderchief fighter-bombers supported by an additional 15 Thuds and seven F-100D Super Sabres on flak suppression. Four more F-100s were tasked with intercepting any MiGs that tried to attack the main force; Lieutenant Colonel Robinson Risner, an ace from the Korean War and a well-respected flight commander, anticipated that the VPAF might make an appearance. In the end, it did not, as Noi Bai was socked in by fog. The toughest opponent proved to be the bridge itself: the 750-pound bombs only slightly damaged it, and the Bullpup guided missiles literally bounced off.

The second and third strikes were to be launched by the US Navy, consisting of 35 A-4s, with 16 F-8s and four F-4B Phantom II fighters as flak suppression and escorts. This time, the weather over Noi Bai had cleared sufficiently for six of the 921st's pilots to take off. While two MiG-17s took off early and headed for the coast as decoys, the other four proceeded towards Thanh Hoa. A little after 10 AM, the lead MiG pilot, Pham Ngoc Lan, radioed that he had visual contact with the Navy strike force. The ground control intercept (GCI) gave him permission to attack. Lan and his wingman, Phan Van Tuc, dropped their wing tanks, and rolled in behind two F-8s, who were apparently unaware the MiGs were even there. Lan fired his MiG's cannons and saw flame erupt from his target. Tuc went after the second F-8, with Lan dropping back to cover him; Tuc fired and thought he saw the F-8 go into a terminal dive. The F-4 escorts did not get into action, because of a breakdown in communications between the two formations of aircraft, which were off different carriers.

With two victories, the VPAF commanders at Noi Bai decided to cut their losses and called the four MiGs home. Three of the four landed safely, but Lan realized he was nearly out of fuel as he came in. The control tower ordered him to eject, but Lan refused, knowing the VPAF needed every aircraft it could get. He skillfully belly-landed the flamed-out MiG-17 on a sandy riverbank.

The VPAF was overjoyed with the news. Not only had all four pilots returned, two Americans had been shot down. The day was immediately proclaimed "Air Force Day" and continues to be celebrated as such in Vietnam to this day. Unfortunately for them, Tuc and Lan had been a little too hasty to claim

victory. Lan's F-8 was damaged, but the pilot made a successful emergency landing at Da Nang in South Vietnam. As for Tuc, he may have assumed that the F-8's dive would result in a crash, but most likely it was the F-8 making a common defensive maneuver known as a split-S. Inexperience was to blame, especially as the other two pilots expended most of their ammunition at extreme range, and Lan had run out of fuel. Still, the VPAF pilots had survived to fight again, and had shown sensible tactics, keeping the fight at close range and covering each other. Since the damage to the Ham Rong bridge was slight, the North Vietnamese expected the Americans to hit it again in the near future, possibly as early as the next day.

They were right. Post-strike reconnaissance showed the USAF that the bridge was undamaged, and another strike was authorized the next morning, 4 April. Once more, Risner led the force, this time consisting of 48 F-105s, supported by eight F-100s for flak suppression and escort. The weather was only slightly better than the day before; to make matters worse for the Americans, the various strike flights, coming from both Korat and Takhli, missed the initial air refueling rendezvous. Instead of the Thuds coming in successive waves, the entire force ended up over Thanh Hoa at the same time, forcing the flights to make vulnerable orbits south of the bridge, waiting their turn to bomb.

The VPAF scrambled eight MiG-17s this time, again sending some of their aircraft in another direction in an effort to decoy the American escorts. The effort did not work, and the other four MiGs climbed to gain a height advantage on the Americans. At 10:30 AM, the lead MiG pilot, this time Tranh Hanh, caught sight of the strike force and received permission to attack. The four MiGs dived through the clouds and attacked Zinc Flight, four F-105s making their bomb runs—the most vulnerable time for a bombing aircraft. Hanh quickly closed the distance and fired on the second Thud in formation. Captain James Magnusson probably never saw his attacker as the F-105 rolled over and crashed. The rest of Zinc flight turned into the MiGs, and Hanh split his flight to cover both ends of the bridge. Le Minh Huan shot up Zinc Lead, Major Frank Bennett, and Bennett turned for the ocean with a mortally damaged Thud. He made it over the Gulf of Tonkin and ejected, but drowned before Navy helicopters could reach him.



Having scored two kills, the MiGs now found themselves under attack, as vengeful F-105s and F-100s engaged them from above, and the North Vietnamese gunners on the ground fired at everything that flew from below. Three of the four MiG-17s went down with the loss of their pilots (Pham Giay, Tran Nguyen Nam, and Le Minh Huan), and Tranh Hanh survived only by using his MiG's superior maneuverability to evade the Americans and his own flak gunners. Out of fuel, he managed to make a crash landing in a river valley south of Thanh Hoa, where he was briefly arrested by local militia, who thought he was an American.

This time the VPAF correctly claimed two F-105s for the loss of three MiG-17s. Captain Don Kilgus, flying one of the F-100s, claimed one of the MiGs, but the USAF only evaluated it as a probable kill. With the Vietnamese confirmation of three MiGs being lost to enemy action—Hanh specifically states in his after-action report that at least one of his wingmen was shot down by an American aircraft<sup>14</sup>--it is safe to say that Kilgus' report was accurate. The other two MiGs were not claimed by any American pilot, but Chris Hobson, in *Vietnam Air Losses*, theorizes that they were probably shot down by the overzealous flak gunners. Nonetheless, the 921<sup>st</sup> Fighter Regiment received congratulations from both Vo Nguyen Giap and Ho Chi Minh for their efforts: "You have fought bravely and shot down the American planes...I am congratulating you, but at the same time asking you to further improve your fighting spirit against the American aggressors. Don't be conceited with your victories and do not let yourself be stopped by difficulties along the way."<sup>15</sup> Johnson, for his part, told the USAF Chief of Staff and the US Navy Chief of Naval Operations that he preferred that no more MiGs be shot down, since that would broaden the war.<sup>16</sup>

### *Summer of '65*

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<sup>14</sup> Toperczer, *MiG-17 and MiG-19 Units*, p. 30. Hanh's report states, "The numerical superiority of the Americans resulted in the loss of my wingman, as well as Le Minh Huan and Tran Nguyen Nam...indeed, I was only able to escape through hard maneuvering."

<sup>15</sup> Istvan Toperczer. *Air War over North Vietnam*. (Carrolton, TX: Squadron/Signal Publications, 1998), p. 11.

<sup>16</sup> Jacob Van Staaveren. *Gradual Failure: The Air War Over North Vietnam, 1965-66*. (Washington, DC: United States Air Force History and Museums Program, 2002), p. 108.

Though Rolling Thunder strikes continued through the spring into June 1965, the VPAF made no further effort to interfere with the American strikes during that time. Despite their success at Thanh Hoa, the VPAF had also lost four aircraft, not counting Lan's damaged MiG-17 from the day before. This was a not insignificant portion of the VPAF's total strength. The VPAF decided to keep training the pilots and maintaining the status quo of attacking only when conditions were favorable for an attack. One such tactic was to wait until the strike force were heading home, when they would be low on fuel and perhaps relaxing their guard.

The Americans were not idle in their reaction to the MiG threat. Since the MiGs were using Ground Controlled Intercept (GCI)—radar controllers carefully watching their screens while positioning fighters for the best angle of attack—the USAF did something similar, deploying a detachment of EC-121D Warning Star airborne early warning aircraft. A forerunner of today's advanced AWACS aircraft, the EC-121 was built off the airframe of the old Lockheed Constellation piston-engined airliner, and flew “racetrack” patterns over Laos and the Gulf of Tonkin, their onboard radars seeing into North Vietnam and giving pilots MiG warnings. The EC-121s most commonly used the callsign “College Eye” (after 1970, “Disco”). Also deployed to help USAF pilots were EB-66C Destroyer aircraft, codenamed “Brown Cradle,” and equipped with powerful electronic countermeasures (ECM) equipment that jammed radar and communications. EB-66s also began flying racetracks, inside North Vietnamese airspace. The North Vietnamese referred to the Brown Cradle aircraft as “Pesky Planes,” and planned to shoot them down as soon as they received MiG-21 interceptors capable of reaching the EB-66's altitude. Finally, F-4C Phantom IIs began arriving in Thailand; the USAF had realized that the F-100 was beginning to show its age, and newer, better fighters were needed for escort missions.<sup>17</sup>

For the week of 12-17 May, President Johnson unilaterally suspended the bombing campaign in an effort to bring Hanoi to the peace table. Nothing of the sort occurred, and Rolling Thunder resumed

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<sup>17</sup> Walter Hanak, ed. Aces and Aerial Victories: The United States Air Force in Southeast Asia, 1965-73. (Maxwell AFB, AL: Air University Press, 1976), p. 4

the next week, with American aircraft allowed to strike north of the 20<sup>th</sup> Parallel for the first time—but still kept well south of Hanoi. Indeed, most of the strikes continued to be sent after Vinh and the Thanh Hoa bridge, both of which were acquiring reputations as two of the most heavily defended targets in Vietnam.

On 17 June 1965, the US Navy “laid on” a strike at Thanh Hoa, consisting of 14 A-4 Skyhawks from carriers *Bon Homme Richard* and *Midway*, escorted by six F-4B Phantoms from the latter. Two of the F-4s were from VF-21, crewed by Commander Lou Page and Lieutenant John Smith, and Lieutenant Jack Batson and Lieutenant Commander Robert Doremus, respectively. Visiting *Midway* that day was the Secretary of the Navy, Paul Nietze; Page had told Nietze that VF-21 would shoot down MiGs that day. He was to keep his promise.

The two F-4s took up a search pattern near Ninh Dinh, north of the bridge. The A-4s made their attack and were heading back to the Gulf of Tonkin when both Phantom RIOs detected two aircraft 45 miles away from them, heading south. The Phantoms accelerated and set up for a head-on attack using AIM-7 Sparrow radar-guided missiles. Because of the restrictions placed by ROE, the Phantom crews had to wait until they could visually identify the MiGs before firing—which in this case was close to the Sparrow’s minimum range. The Phantom crews also learned that there were not two MiG-17s, but four—the MiGs had remained in close formation, presenting only two targets on the radar screen. When the Phantoms’ radar locked onto the MiGs, the latter detected them and began a hard break. Page, excitedly calling out “It’s MiGs!”, fired a Sparrow at the lead MiG. It was a perfect shot, blowing off the right wing the MiG-17. Batson fired a split-second later at his target, so close that he lost sight of the missile as he climbed, but Doremus saw the missile hit. The stricken MiG’s wingman flashed past Batson’s F-4, just behind his now-falling leader. Page ordered the F-4 section to climb out of the battle, using the F-4’s superior speed in the vertical plane to disengage. Once they had reformed above the clouds, the two Phantoms dived back down, but found the sky empty save for one MiG pilot

in his parachute. Low on fuel, the Phantoms returned to *Midway*, to quite a reception from their fellow fighter pilots and Nietze, then on to Saigon, where they were feted by Westmoreland.<sup>18</sup>

Since Kilgus' kill is still officially considered a probable, the teams of Page/Smith and Batson/Doremus are usually considered the first American "MiG Killers" of the Vietnam War.<sup>19</sup> The VPAF acknowledge the loss of two MiG-17s to enemy action and a third that "crashed into a mountain." In 1997, following declassification of documents relating to the Vietnam War, the US Navy officially credited Batson and Doremus with a second kill for the day—the MiG-17 that had gone past their Phantom shortly after Batson fired the Sparrow had apparently ingested pieces of his leader's aircraft as it came apart. Apparently, the unfortunate pilot tried to maintain control of his aircraft but crashed, most likely never reporting the circumstances. The VPAF also claimed two F-4s shot down, but this is a case of wishful thinking; no losses are reported of any American aircraft on 17 June.<sup>20</sup>

20 June 1965 brought another spate of air combat, in different locations with different results. The US Navy struck targets near Thanh Hoa, while the USAF visited northwest North Vietnam for the first time, hitting a North Vietnamese Army barracks at Son La. In both cases, two MiG-17s were dispatched to attack the Americans. The Navy had better luck: the MiG-17s attacked a formation of six A-1H Skyraiders. The A-1s went low to evade the MiGs and split up, also splitting the MiG formation. Lieutenants Charlie Hartman and Clinton Johnson intercepted one MiG going after the flight leader. The two Skyraiders opened fire with their wing-mounted twenty millimeter cannons—unlike the F-4, the venerable A-1s still had internal guns—and shot down the MiG. Both pilots were awarded a half kill each.<sup>21</sup> The VPAF did better over Son La, shooting down a F-4C. For the day, the VPAF claimed two A-1s and one F-4, with the loss of one pilot who, again, "crashed into a mountain for unknown

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<sup>18</sup> Brad Elward and Peter Davies. US Navy F-4 Phantom II MiG Killers, 1965-70. (Oxford: Osprey Publishing, 2002), pp. 24-26.

<sup>19</sup> This does not take into account the confused action off Hainan Island on 9 April 1965, in which Lieutenant (jg) Terrence Murphy and Ensign Ronald Fegan of VF-96 shot down a Chinese MiG-17 before being shot down and killed themselves. Since this narrative covers only the Vietnam War, I have not included this.

<sup>20</sup> Toperczer, *Air War*, p. 12.

<sup>21</sup> Van Staaveren, p. 144.

reasons.” The F-4 has been confirmed by postwar records, but no A-1s were lost that day, and the MiG crashed because it had been shot down.<sup>22</sup>

With still no response from Hanoi on negotiations, President Johnson extended Rolling Thunder’s boundaries. Though attacks in the south were still limited to just above Thanh Hoa, USAF aircraft were permitted to attack targets in Pak Five, extending as far east as the Red (Hong) River and the valuable Northwest Railway that ran from China to Hanoi, down the Red River valley and the rail siding at Yen Bai. Though losses still happened (at a low rate, compared with what was to follow), they were wholly to low-level antiaircraft fire. The MiGs were still being flown, the VPAF sticking to the tactic of attempting intercepts when the Americans were low on fuel. Like the Navy, the USAF’s 2<sup>nd</sup> Air Division, at the time commanding forces in Thailand (the USAF’s commitment to Rolling Thunder was still “temporary” at the time, with formal wing assignments not yet established), had noticed the VPAF’s tactics. On 10 July 1965, a flight of F-4Cs from Ubon RTAFB, led by Major Richard Hall, delayed their takeoff by twenty minutes. Moreover, they mimicked the flight pattern of a flight of F-105 Thunderchief fighter-bombers, and kept strict radio silence.

Hall’s flight arrived near Yen Bai and quickly picked up radar contact with a flight of two MiG-17s. The MiGs realized they had been ambushed and turned north, racing for the safety of China. The F-4s briefly pursued but then turned back; Hall decided that he would not be able to catch the MiGs before they entered the sacrosanct buffer zone. The MiGs also turned around in an attempt to turn the tables, and the fight was on.

The two MiGs dived between the two sections of the four F-4s, concentrating on the section of Captains Kenneth Holcombe and Arthur Clark, and Thomas Roberts and Ronald Anderson. While Hall’s first section went into a defensive formation (expecting another two MiGs to arrive, since MiG-17s habitually flew in four-ship formations), Holcombe and Roberts broke into the attacking MiGs. The more maneuverable MiG-17s quickly got behind the Americans, but the F-4s were too fast, and the Vietnamese cannon fire missed. Holcombe and Roberts split their formation and the Vietnamese did

the same. Holcombe went into a “scissors” maneuver (a series of turns in which the defender steadily loses airspeed in an attempt to force the attacker out front) that succeeded in getting the MiG to overshoot, but once more, the VPAF pilot used his maneuverability to get out of trouble, turn, and attack head-on. This posed a problem, for the F-4C lacked an internal gun, and Holcombe’s radar had gone down, making even a very close range Sparrow shot impossible. With the MiG-17 swinging in behind again, Holcombe threw the F-4 into a tight barrel roll, once more causing the MiG to overshoot. This time, Holcombe was in good position and had switched to Sidewinder heat-seeking missiles. He fired all four Sidewinders in quick succession, two missing entirely but two striking the MiG’s tail. Just as the MiG-17 entered a cloud, it exploded.

Roberts had a less harrowing experience. He climbed away from the MiG at Mach 1.4, quickly leaving the MiG behind; the Vietnamese pilot stalled his aircraft in an attempt to pursue. As the MiG-17 dived down to regain airspeed, Roberts also dived, got into range, and fired three Sidewinders. Two hit, and the MiG rolled over and dived into the ground. The four Phantoms reformed and returned home. The crews of Holcombe/Clark and Roberts/Anderson had scored the first confirmed USAF MiG kills of the war. The VPAF admitted losing both MiGs and their pilots and claimed one F-4 shot down, though all four Phantoms returned to Ubon without damage.<sup>23</sup>

#### *The VPAF Reforms and Takes Stock, July-December 1965*

Since their introduction to combat in April 1965, the VPAF had fought five major air battles, claiming ten American aircraft destroyed (only three being confirmed by postwar records). However, they had lost nine MiG-17s and, more importantly, six pilots. With only about fifteen pilots to choose from, a few more air battles would wipe out the entire force. The VPAF’s high command immediately ordered it to stand down until further notice, limiting it to practice flights only. Since Johnson and

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<sup>22</sup> Van Staaveren, p. 12; Hobson, p. 23.

<sup>23</sup> Hanak, pp. 22-26.

McNamara were still restricting American pilots from attacking east of the Red River, much less the MiG base at Noi Bai, the VPAF had time to recover, rearm, and reform.

The latter included both expanding the available bases and getting new aircraft and pilots. Bases at Hoa Lac, Yen Bai, Tho Xuan, Kep, and Kien An were to be built or expanded, with work also going on at Hanoi's airport at Gia Lam. When Kep was opened in early September, a second fighter regiment, the 923<sup>rd</sup>, was activated there; the arrival of a fresh shipment of MiG-17s, and more importantly, MiG-21s, allowed each regiment to expand from one to two squadrons each. 30 new pilots, fresh from training in China and the Soviet Union, also arrived. While the new 923<sup>rd</sup> Regiment retained MiG-17s, the 921<sup>st</sup> reequipped with a mix of MiG-17s and MiG-21s, also retaining the bulk of the veteran pilots.

By mid-September, it was felt that the VPAF was ready to go back into battle—but only under conditions even tighter than those imposed before. The VPAF pilots, under strict GCI control, limited their attacks to turning in behind the bomb-laden F-105s and then breaking off before the F-4 escorts could intervene. While this proved frustrating to both the Vietnamese and the American pilots, it did give both the MiG pilots and their GCI controllers valuable experience in coordination, and occasionally forced the F-105s to drop their bombs early to maneuver—which, as far as Hanoi was concerned, was as good as a kill.

A few fighter combats were allowed to develop. On 20 September, four MiG-17s intercepted a group of Navy aircraft attacking the Northeast Railroad near Nha Nam, the deepest penetration of North Vietnam by American aircraft to that date. Nguyen Nhat Chieu claimed a F-4 shot down with cannon fire, but American records show no F-4s lost on that date, though two F-105s and one A-4 were lost to ground fire.<sup>24</sup>

On 6 October, another battle developed, again with US Navy aircraft, this time near Kep airbase. Flying escort for A-4s, a F-4 of VF-151, flown by Lieutenant Commander Dan McIntyre and Lieutenant (jg) Alan Johnson, detected three radar contacts closing on the strike force—three MiG-17s

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<sup>24</sup> Toperczer, *Air War*, p. 12. Included in the total of American aircraft lost on this date was a F-104C Starfighter shot down over Hainan Island by Chinese MiG-19s; the pilot, Captain Philip Smith, was the only

in an unmistakable “trail” formation, one aircraft behind the other. McIntyre saw the MiGs, climbed, and thought he had shot down the last MiG in line with a Sparrow, apparently before the Vietnamese even knew they were under attack. The lead MiG-17 reacted by breaking left, turning to get in behind McIntyre’s F-4. Deciding that the MiG pilot would not shoot if it meant there was a chance he would hit his wingman (the second MiG-17 in line), McIntyre leapfrogged the second MiG in a barrel-roll, his blazing afterburners scant feet from the Vietnamese pilot’s canopy. That was enough for the pilot, who turned and headed for Noi Bai at full speed. McIntyre went after him, but his wingman was now under attack by the lead MiG, so McIntyre turned back to help. When Johnson was able to lock onto the MiG, the Vietnamese broke away and headed for China. McIntyre gave up the chase and returned home to USS *Coral Sea*.<sup>25</sup> He claimed the kill as a probable. As it turned out, he had very nearly shot down Nguyen Van Bay, who managed to get his crippled MiG-17 back to Noi Bai. Once he had climbed out, he and the ground crew counted 82 holes in the aircraft. McIntyre had not scored a kill after all, but he had certainly made an impression on Bay, whose first warning had come when the Sparrow had detonated and nearly taken his wing off: “I felt like a light boxer who confidently walked up to the ring and tried to knock out the super heavy boxers.” Van Bay would learn his lessons from this brush with death.<sup>26</sup>

One more engagement may have been fought in 1965: on 6 November, four MiG-17s from the 921<sup>st</sup> Regiment claimed a unknown helicopter, with credit being given to Trinh Hanh, Ngo Doan Hung, Pham Ngoc Lan, and Tran Van Phoung.<sup>27</sup> A HH-3E rescue helicopter was lost on this date in an attempt to find a F-105 pilot shot down the day before, but one of the HH-3’s crew, writing about his experience, reported that the helicopter was shot down by ground fire, supported by the fact that the bullets and shells came through the floor of the HH-3. As the helicopter was at low level, in mountains,

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American known to have been held prisoner by the Chinese during the war. He was released in 1973.

<sup>25</sup> Elward and Davies, *U.S. Navy F-4 Phantom II MiG Killers, 1965-70*, pp. 29-30.

<sup>26</sup> Ralph Wetterhahn, “Nguyen Van Bay and the Aces from the North,” *Air and Space*, 15, No. 4 (2000), pp. 47-48.

<sup>27</sup> Toperczer, *Air War*, p. 12.



it is unlikely that a MiG would have been able to climb, shoot, and avoid both the mountains and the helicopter (which was hovering).<sup>28</sup>

### *1965 In Retrospect*

By the end of 1965, the United States could look back on the eight-month old air war with some satisfaction, at least from the aerial combat point of view. American pilots had downed nine MiG-17s, having lost three aircraft of their own. For a war that was intended to be limited in scope, and given their opponent's numbers, that was not a bad beginning. However, the experience had shown that the North Vietnamese were aggressive and would be a factor beyond a nuisance. With the Rules of Engagement still in place, the VPAF could resupply and rebuild at will, and were doing so. Given the experiences of various combats, American F-4 crews were apparently still under the impression they could get into a turning dogfight with the MiG-17 and win, while the F-4's lack of an internal gun was already becoming a problem. Moreover, the "wonder weapon" guided missiles like the AIM-7 Sparrow, and to a lesser extent, the AIM-9 Sidewinder, obviously had problems. The pilots were unlucky in that Secretary of Defense McNamara was still working at cross purposes to them—Rolling Thunder strikes were still rigidly controlled, the buffer zones provided ready-made safe havens, and if the MiG threat was still relatively low-level, the antiaircraft artillery (AAA) and surface-to-air missile (SAM) threat was getting stronger by the day. The SAM had already made a lethal debut in the skies over North Vietnam, helped immensely by McNamara's refusal to allow preemptive strikes on the SAM sites to avoid possible Russian and Chinese advisor casualties. It was naively hoped that, if the Americans did not attack the SAMs, then the North Vietnamese would not use them. It was an incredible decision that would cost the lives of many American aircrew, and the solution to fighting SAMs—the "Wild Weasel" program of dedicated SAM site attackers—was still some months away.

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<sup>28</sup> Berkely Naugle, "First Flight Across the Fence." Jolly Green Air Rescue Association, [www.jollygreen.org](http://www.jollygreen.org).

The VPAF also came away with mixed results and much less reason to feel comfortable with the war's progression. Though they had claimed twelve aircraft shot down (including Van Ba's C-123 kill of early 1964), they had lost ten aircraft in the process (including the two lost to friendly fire over Thanh Hoa). The Americans could afford to lose on a one-for-one basis, even if they preferred not to; for the VPAF, such victories were Pyrrhic no matter what the eventual true result was. The arrival of new pilots and equipment, and an extended training cycle, was to bear fruit for the VPAF in 1966, but it would still be a very close battle, in which the VPAF would have to choose its time to fight very carefully.

## ***1966: The Air War Intensifies***

### *Introduction*

As Rolling Thunder intensified and the bombing line moved north to encompass nearly all of North Vietnam, air combat became more and more prevalent. The VPAF, its bases protected by ROE and reinforced with additional pilots, became more aggressive. Though its victory list was grossly inflated, the fact remained that the VPAF, by December 1966, was contesting every strike into Pak Six, moving from a nuisance to American efforts to a real threat. In one week in December alone, three American F-105s fell to the guns and missiles of North Vietnamese MiGs.

This did not come without a price for the VPAF, as the Americans stayed just ahead in the numbers game. Yet a two to one kill ratio was not at all what the US armed forces expected. While the Sidewinder heat-seeking missile was proving generally to be a success, the radar-guided Sparrow was extremely unreliable. Gun-equipped fighters such as the F-8 and F-105 were having better luck than the F-4 Phantoms ostensibly supplementing or protecting them. In the face of growing North Vietnamese aggressiveness and failures on the part of the United States to exploit their own advantages, the USAF began to take steps to reduce the MiG threat to nil.

### *Truce and Monsoon*

1965 ended and 1966 began with the skies over North Vietnam quiet: President Johnson had once more halted Rolling Thunder for a Christmas/Tet truce, lasting from 24 December 1965 to 31 January 1966. Johnson still hoped for negotiations, but Hanoi kept Washington at arm's length, saying in so many words that the only chance for peace was an immediate end to Rolling Thunder and the war on Hanoi's terms, and used the time to rebuild. In January, the 921<sup>st</sup> Fighter Regiment at Noi Bai became fully operational on the MiG-21, and was authorized to begin combat operations as soon as American airstrikes resumed. The 923<sup>rd</sup> was expected to be ready by mid-February. Even when Rolling Thunder restarted on 31 January, its effectiveness was limited by both Johnson (who limited attacks to the North

Vietnam “panhandle” and sorties to 300 per day) and monsoon season. In that kind of weather, anyone’s flying was limited.<sup>29</sup>

According to VPAF records, air combat still occurred. Having undergone night training for its MiG-17 pilots, the 921<sup>st</sup> Regiment began running night combat patrols. On 3 February, Lam Van Lich claimed two A-1 Skyraiders shot down near Cho Ben at night. American records list only one RA-5C Vigilante lost to AAA during the day; given that the Vigilante was three times the size of an A-1, there could be no case of mistaken identity. If Lich shot anything down, it was not American. On 4 March, as the monsoon began to wane, a flight of four MiG-17s of the 923<sup>rd</sup> Regiment took off from the newly expanded Kep airfield for a combat air patrol, engaging a flight of F-4s. Phan Thanh Chung missed his target with cannon fire, while Ngo Duc Mai opened fire at a little over a thousand feet behind a F-4. Seeing no damage, he closed to within 500 feet and fired again, and claimed that the F-4 had exploded. The MiG-17s disengaged and headed back to Kep, with the F-4s coming after them. Mai turned back into the fight, at which point the Americans also disengaged; the MiGs landed safely. Mai may have indeed hit his target, but American records do not bear out his claim that it exploded; no aircraft were lost over North Vietnam that day.<sup>30</sup>

#### *Rolling Thunder IV*

With the weather clearing and still no hint of diplomatic progress, Johnson ordered Phase IV of Rolling Thunder to commence on 1 April 1966. This would be as close as completely “taking off the gloves” as Johnson was going to get during the air campaign, as it authorized strikes over all of North Vietnam, save for the Chinese buffer zones and the 30-mile exclusion zones around Hanoi and Haiphong.

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<sup>29</sup> Hanak, p. 7.

<sup>30</sup> Toperczer, *Air War*, p. 13; Hobson, p. 49, 51. There is a remote possibility that Lich’s kills might have been South Vietnamese Air Force A-1s, but no SVAFA aircraft operated above Pak One.

The USAF and the USN both entered this new phase of the campaign with more weapons at their disposal. For the USAF, this meant a multi-layered approach to a strike mission that was to continue until the end of the war. Strike flights, consisting of bomb-carrying F-105s, were preceded by F-100F two-seat Super Sabre Wild Weasels; their mission was to destroy or suppress the SAM sites. They were assisted by “Iron Hand” AAA suppression flights, usually F-105s with cluster bombs and rockets. To deal with the MiG threat, F-4 fighters both escorted the strike force and engaged in MiGCAP (MiG Combat Air Patrol) missions; the latter consisted of a flight of F-4s whose sole purpose was to orbit close to the MiG bases at Noi Bai and Kep and attack any MiG that got too close to the force. Because the F-4s were to fight MiGs, MiGCAP missions were highly prized by the aggressive F-4 fighter pilots. Finally, the force was supported by EC-121 airborne early warning aircraft over Laos, EB-66 standoff ECM jamming aircraft over North Vietnam, and KC-135 Stratotanker airborne refuellers, also over Laos. The US Navy did not have dedicated Wild Weasel aircraft, but did equip some of its A-4 Skyhawks with Shrikes and flew Iron Hand missions. The Navy also had a more two-dimensional threat to the MiGs, in the form of both missile-only F-4s and gun-equipped F-8 Crusaders, who flew MiGCAP, escort missions (referred to as Target CAP, or TARCAP), and offshore Barrier Combat Air Patrols (BARCAP), to prevent VPAF attacks on the Seventh Fleet carriers in the Gulf of Tonkin and attacks on retreating strike force aircraft.<sup>31</sup>

Admiral Sharp, working in concert with USAF Pacific Air Force (PACAF) staff and Strategic Air Command, proposed before Rolling Thunder IV began to launch a devastating strike on Noi Bai and Kep airfields, either with a joint USAF-USN airstrike or the use of B-52s. McNamara, predictably, refused—despite several reports from the Defense Intelligence Agency that the possibility of Chinese or Soviet intervention in the war if the airfields were bombed was nil, he and Johnson believed that such a move risked all-out war with the Eastern Bloc.<sup>32</sup>

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<sup>31</sup> Hanak, p. 7.

<sup>32</sup> Van Staaveren, pp. 272-273.

The first air combat of the new phase of operations came on 23 April 1966, when a flight of MiG-17s from Kep attempted to attack a strike on the Bac Giang railroad viaduct northeast of Hanoi. Between the force and the MiGs was a MiGCAP of four F-4Cs from the 8<sup>th</sup> Tactical Fighter Wing, known as the “Wolfpack” to its pilots. The eight aircraft met each other head-on, the lead F-4 section firing Sparrows. None hit, and the fight became a close-range affair. Once more, the F-4s made the mistake of getting into a turning fight with the nimble MiG-17s, but three of the four VPAF pilots also made a mistake in getting between the two sections of F-4s. Captain Max Cameron and his WSO, Lieutenant Robert Evans, shot down one of the MiG-17s with a Sidewinder. Cameron’s wingman crew, Captain Robert Blake and Lieutenant S.W. George, came under attack from the fourth MiG. Blake climbed away from the MiG, sensibly using his F-4’s superior speed, then rolled back down and caught the MiG-17 trying to disengage, heading back for Noi Bai. Blake fired two Sparrows; the second connected. The remaining MiGs broke off the engagement and returned to base. The Bac Giang strike went off without loss.<sup>33</sup>

Three days later, two RB-66 Destroyers were sent along the Northeast Railroad to get pictures for upcoming strikes from Bac Giang to Lam Son in the buffer zone. The RB-66s were escorted by three F-4s. As the formation approached the railway, one of the F-4 crews, Major Paul Gilmore and Lieutenant William Smith, spotted two MiG-21s climbing to meet them—the first time MiG-21s had been seen over North Vietnam. The 921<sup>st</sup> Regiment was making its debut with their new aircraft, the target being the RB-66. The F-4s dropped their external fuel tanks and rolled into the attack as the RB-66 made a run for the Gulf of Tonkin. The MiGs turned and headed northwest, with the F-4s coming up behind. Gilmore sighted on the second MiG in line, which was making slow turns; the MiG-21 had notoriously poor vision to the rear and below, and the pilot was trying to see the F-4s. Gilmore closed in and fired a Sidewinder, rolling to one side, readying for the MiG’s evasive maneuvers. There were none, but the MiG was still flying, so Gilmore fired two more Sidewinders. The second missed; the third hit, and the MiG finally went down. The first MiG-21 pilot had turned back around to help his

wingman; seeing two F-4s and all alone, the VPAF pilot wisely decided to head for home at high speed. Gilmore fired his last Sidewinder at extremely close range, but the missile failed to arm and went over the MiG's left wing; the F-4s disengaged and headed for Thailand, most likely leaving a very rattled MiG pilot. When Gilmore and Smith debriefed back at Ubon, their wingman informed them that the first Sidewinder had actually hit, and the pilot had ejected—Gilmore had expended two Sidewinders on a pilotless aircraft! Whatever the case, the F-4 crew had scored the first shoot down of a MiG-21 of the Vietnam War; it was not an auspicious beginning for the VPAF's new aircraft.<sup>34</sup> Ho Van Quy of the 923<sup>rd</sup> Regiment, piloting a MiG-17, may have seen the battle and subsequently claimed two F-4Cs shot down and a third damaged. No American aircraft were lost that day, so on what basis Quy claimed the kills is unknown.<sup>35</sup> Further muddying the issue is Nguyen Van Bay claiming a kill on the same date, flying with Quy. (Van Bay had just been married a week before, but the tempo of operations was so high that, after the ceremony was concluded, he did not see his wife again for another two weeks.)<sup>36</sup>

On 29 April, a RF-101 Voodoo reconnaissance aircraft was shot down by AAA near Yen Bai, and so a search and rescue mission was scrambled from Thailand to attempt a rescue. As the escorting A-1E Skyraiders (callsign "Sandy") crossed into North Vietnam, Captain Leo Boston got separated from the main flight and was shot down by a MiG-17 near Na San. Boston was declared Missing In Action until 1978, when his status was changed to KIA.<sup>37</sup> This is confirmed by postwar records, but strangely enough, VPAF records (at least those available to the author) do not record the kill.

This combat raises an interesting possibility: it is now known that Russian pilots flew combat with the VPAF during the Vietnam War, albeit rarely. The best known is Senior Lieutenant Vladimir

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<sup>33</sup> Hanak, p. 27.

<sup>34</sup> Hanak, p. 29.

<sup>35</sup> Toperczer, *Air War*, p. 13. In the list of VPAF kills in the back of Toperczer's book, Ho Van Quy is listed as having shot one F-4C down on 26 April and the second on 28 April. The second has more basis in fact, as there was a US Navy F-4B shot down on 28 April; as it was one of the few Navy F-4s to be camouflaged, it easily could be mistaken for a F-4C. However, since the F-4B was shot down off Haiphong, well south of where Quy reported shooting down the F-4C, Quy's claim has to remain unsubstantiated. (The F-4B's crew were rescued and reported they had been shot down by ground fire.)

<sup>36</sup> Wetterhahn, p. 48.

<sup>37</sup> Hobson, p. 58.

Shchbakov, a combat instructor with the 921<sup>st</sup> Fighter Regiment, who piloted a MiG-21 and may have scored as many as six kills between 1966-67; information in this regard, discovered by the US-Russia Joint Commission for POW/MIAs, is very spotty. Also known is that North Korean pilots began flying combat missions in MiG-17s about this time, so it is a possibility that Boston was shot down by a North Korean.<sup>38</sup>

The same day's afternoon strike was once more against the Bac Giang viaduct, and once more the F-4 MiGCAP was challenged by VPAF MiG-17s. The F-4s "bounced" the MiGs, and one of the aircraft in the second element, crewed by Major William Dowell and Lieutenant Halbert Gossard, quickly shot down one MiG-17 with a single Sidewinder shot. Captain Larry Keith and Robert Bleakly, flying the lead F-4, had turned to cover the rear of the second section—sure enough, as Dowell pulled away from his victory, another MiG was rolling in behind him. Keith fired a Sidewinder to distract the MiG pilot, then dropped in behind the frantically maneuvering MiG-17; both aircraft were at low level over the mountain ridges north of Bac Giang. As Keith closed to fire, the MiG rolled over and flew into the ground. Keith surmised later that the MiG pilot had either tried to dive away from the fight and not realized how low he was, or had lost control of the aircraft. Keith received credit for the MiG.

The tempo of operations for both sides can be reflected in the fact that yet another air combat occurred the very next day. Four F-4Cs of the 8<sup>th</sup> TFW (whose pilots had scored the previous day's kills) were alternating fighter cover for a rescue mission near Yen Bai, with one element of two aircraft covering the rescue while the other element refueled just over the Laotian border. As the two elements were exchanging places, a force of four MiG-17s attacked the departing section, correctly deducing which element would be low on fuel and attacking out of the sun. One of the F-4 crewmen noticed the MiGs positioning to attack, however (one advantage of having two men in a F-4), and the F-4s turned towards the MiGs. Captain Lawrence Golberg and Lieutenant Gerald Hardgrave shot down one of the

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<sup>38</sup> Message board posting from Diego Zampini, "NK Pilots in North Vietnam."



MiG-17s with a Sidewinder. Both sides disengaged from the battle, a good thing for two of the F-4s; Golberg and Hardgrave landed at Udorn RTAFB with four minutes of fuel left in their aircraft.

The spring of 1966 ended with one more air combat, this one controversial in that it may have involved Chinese People's Liberation Army Air Force MiGs. One 12 May 1966, three F-4s of the 35<sup>th</sup> TFW were escorting an EB-66 at the head of the Red River valley, the EB-66 doing its usual job of standoff electronic jamming. Four MiG-17s attacked the formation from higher altitude; one MiG dived and rolled out behind the EB-66. The MiG pilot apparently never saw the F-4 flown by Major Wilbur Dudley and Lieutenant Imants Kringelis, who fired two Sidewinders. The second hit, and the MiG-17 spiraled into the ground. The Chinese later charged that the combat had taken place 25 miles north of the Chinese-Vietnamese border in Yunan province, but the USAF insisted that its pilots had been 25 miles *south* of the border, just inside the buffer zone. Later investigation pointed to the contrary, that the EB-66 had indeed strayed into Chinese airspace. Thus, it is likely the MiG was Chinese—as both the VPAF and the PLAAF used similar markings, it would be easy to make a mistake. Whatever the MiG pilot's nationality, Dudley made a poignant statement on the realities of air combat after the mission: "The enemy flier seemed to be a pretty good pilot, but he made one mistake. He apparently had a case of tunnel vision when he bore in on the EB-66...and one mistake is all you're allowed in this game."<sup>39</sup>

#### *Checkmates vs. the VPAF, June 1966*

As the USS *Hancock* reached the Gulf of Tonkin on 7 June, the commander of the carrier air wing, Jack Monger, told his F-8 Crusader pilots, "We will get MiGs." Until then, with the exception of the brush in the first Thanh Hoa raid, F-8 pilots had rarely encountered MiGs. Monger's plan was to place

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<sup>39</sup> Hanak, p. 30. The Chinese claimed that five F-4s had fired on a training mission, and published pictures of fragments of a Sidewinder missile and fuel tanks. Given the actions of the MiG pilots, the training mission story is highly unlikely—unless, perhaps, the Chinese aircraft had penetrated North Vietnamese airspace while on a training mission and decided to engage the Americans.

the F-8s in close proximity to the Navy's strike forces, rather than spread out. The MiGs would have no choice but to fight through the escorts to get to the bomb-carrying A-1s and A-4s.<sup>40</sup>

The VPAF had claimed two F-8s on 5 June with MiG-17s, a F-105D on 7 June, and two F-4s on 9 June, the latter three with MiG-21s. All five claims are unsubstantiated, as no American aircraft were lost over North Vietnam on 5 or 9 June; the F-105 lost on 7 June was shot down just north of the DMZ, much too far south for MiGs to roam.<sup>41</sup> Monger's F-8 pilots also came up empty for the first four days.

That changed on 12 June. Four F-8s from the *Hancock* escorted A-4s on a raid north of Haiphong; in the lead section were two members of VF-211, Commander Harold Marr and Lieutenant (jg) Philip Vampatella. As the force came off the target and headed out over Yen Tu Mountain (known to the pilots as "MiG Ridge"), Vampatella sighted four MiG-17s closing in from the rear, less than two miles away. The F-8s split into two sections of two aircraft, Marr leading Vampatella to the left. The MiGs similarly split their formation. The two VF-211 F-8s met the MiGs head-on; Marr, turning through the formation, fired at two MiGs with his twenty millimeter cannon, but missed. With the F-8s now behind them, the MiGs went into a defensive break, the Vietnamese pilots turning away from each other. Marr followed the left-most MiG-17, which had rolled down into a valley and was running for Kep. Marr closed the distance and fired two Sidewinders; the second hit, the MiG-17 tumbling end over end into a village. Marr climbed away through the clouds and spotted two more MiG-17s, got in behind them, and fired his guns. They jammed after only a few shots, but not before Marr spotted pieces of one MiG's wing flying off. Out of missiles and with inoperable guns, Marr turned and headed back to the *Hancock*, engaging in a small victory celebration by flying at wave top height *under* the angle deck. Marr had scored the first F-8 victory of the war, so the powers that be allowed him some excess. The Navy credited Marr with one confirmed MiG-17 kill and one probable.<sup>42</sup>

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<sup>40</sup> Barrett Tillman. MiG Master: The Story of the F-8 Crusader. (Annapolis, MD: Naval Institute Press, 1990), pp. 129-130.

<sup>41</sup> Toperczer, Air War, p. 14; Hobson, p. 61.

<sup>42</sup> Tillman, pp.131-134. As Tillman points out, the MiG-17's wing was "dry," with no explosive fuel tanks, so chances are good the MiG pilot managed to reach Kep safely.

Nine days passed until the next air combat, and once more it was between the F-8s of VF-211 and MiG-17s of the 923<sup>rd</sup> Fighter Regiment. The catalyst for this fight was the downing of a RF-8A photo-reconnaissance version of the Crusader, which was photographing the Northeast Railroad northeast of Kep and was shot down by ground fire. The four escorting F-8Es, including Lieutenant Commander Cole Black, Lieutenant Gene Chancy, and Philip Vampatella, set up an orbit over the downed pilot while calling for rescue helicopters. The AAA continued to be heavy, damaging both Black and Vampatella's F-8s. Black ordered Vampatella's section to refuel from the KA-3 Skywarrior tankers off the coast, but just after the second section departed, four MiG-17s tumbled out of the clouds and attacked Black and Chancy. The other section, despite being low on fuel and with Vampatella damaged, turned back to help. Chancy was able to turn the tables on his attacker and fired a Sidewinder that damaged the MiG-17, which turned for Kep. Chancy pursued and finished off the MiG with gunfire. Black was less lucky: one MiG closed in and shot him down. Vampatella, arriving on the scene, saw Black go down, but had his own problems. His F-8 was sluggish, damaged worse than he thought; worse, yet another MiG-17 was on his tail. He broke away, but the MiG stayed with him, so Vampatella tried a dangerous move: despite being at low altitude, he went into a split-S, a dive with a roll out in the opposite direction at the end. He nearly hit the trees, but made it; Vampatella looked behind to see that the MiG had followed him through the split-S and was still there. The American frantically evaded at high speed, with such force that his helmet bounced off the canopy several times. With the F-8 in danger of coming apart, Vampatella glanced behind him as he slowed down, and saw that the MiG pilot had given up, heading back towards Kep. Vampatella turned around, closed the distance, and shot down the unwary MiG pilot with a Sidewinder. He then headed back to the *Hancock*, and managed to land despite being nearly out of fuel with an unstable aircraft.<sup>43</sup>

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<sup>43</sup> Tillman, pp. 134-138.

The end result for the day was two MiGs shot down for the loss of one F-8 to MiGs and the RF-8 to ground fire. The VPAF credits pilots Phan Thanh Trung, Doung Truong Tan, Phan Van Tuc, and Nguyen Van Bay with two kills each, a common practice in large dogfights, counting the RF-8 and Black's F-8E. However, the first must be discredited, as the RF-8 was shot down by AAA, which also damaged Black and Vampatella, several minutes before the MiGs arrived on the scene. With no way to tell which VPAF pilot shot down Black (and, by Vampatella's description, only one MiG attacked Black), a quarter kill for each pilot seems fair.

### *The Petroleum Strikes, Summer 1966*

Throughout late 1965 and early 1966, the Joint Chiefs of Staff had pressed McNamara and Johnson for permission to attack Petroleum, Oil, and Lubrication (POL) storage sites in North Vietnam. This would severely hurt the North's ability to operate motorized boats and trucks to supply the Viet Cong and their own forces in the South. McNamara agreed, since the political cost was likely to be low, although he privately believed that the loss of the POL sites would do little to impact the war in the South. (He was backed in this opinion by a CIA report, which correctly pointed out that the VC depended very little on motorized transport.) The strikes were delayed through the spring, as Canada attempted to restart peace negotiations without result, and again in June, due to weather and constant press leaks. The strikes finally came off on 29 June, by which time Hanoi was well aware the strikes were coming.

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The first POL strike by the USAF on the afternoon on the 29<sup>th</sup> hit a storage facility only four miles from Hanoi, the closest American strike to the capital so far. Predictably, it drew a strong response from the VPAF, with four MiG-17s of the 923<sup>rd</sup> Fighter Regiment going after four of the Iron Hand flak-suppression F-105s of the 388<sup>th</sup> TFW. The MiG pilots included two of the survivors of the 21 June battle with VF-211, Van Tuc and Van Bay, along with Tran Huyen and Vo Van Man. As the MiG-17s came in from behind, the Iron Hand flight jettisoned their ordnance and turned to fight. The

lead MiG (probably Huyen) fired at the third F-105 in the flight, missed, and then shot at the second F-105, piloted by Major Fred Tracy. One of the MiG's 23mm cannon shells came through the canopy and into Tracy's instrument panel, causing Tracy to involuntarily let go of the throttle and the Thud to slow down. This may have saved Tracy's life, for the sudden reduction in speed caused the MiG-17 to overshoot and end up directly in front of Tracy. Unlike the F-4, the F-105 still retained an internal cannon. Tracy fired, despite a smashed gunsight, scoring hits on the MiG, which rolled over and dived, smoking. Tracy, who had also lost his oxygen equipment, disengaged to head home. Gunfire from the second MiG-17 (Van Man) damaged the lead F-105, and the MiGs, now outnumbered, disengaged. The fourth F-105 pilot virtually exhausted the ammunition for his 20mm firing at the MiGs, but scored no hits. Tracy was the first F-105 pilot to score an aerial victory. Radio Hanoi claimed all four Thuds shot down, though postwar VPAF records claim only two F-105s, again crediting two kills each to every member of the formation. All four Iron Hand aircraft returned safely, albeit with two damaged; one F-105 was lost to heavy AAA fire over the target, and except for Tracy's flight, no other Americans reported a MiG attack.<sup>45</sup>

By July, the VPAF had claimed 14 kills (all but the 29 April loss of the A-1 discounted by American postwar records), but they had lost twelve aircraft in the process. This was less serious than the year before, as the VPAF now had over 50 aircraft on strength with plenty of pilots, and while the VPAF's high command was impressed with the MiG-17 pilots' performance, the vaunted MiG-21 had failed to live up to its promise and had been unable to do much against the Americans. The reason for this was traced to pilot inexperience: the VPAF pilots were still used to the slower, more maneuverable MiG-17 and were trying to fly the MiG-21 as such. It was decided to switch tactics and put the MiG-21s on combat air patrol at high altitude, along the Americans' routes into Pak Six. These never changed (thanks to the Rules of Engagement) and were generally down the Red River valley, along Tam Do

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<sup>44</sup> Van Staaveren, pp. 279-290.

<sup>45</sup> Hanak, pp. 30-31.

Mountain, known to the American pilots as “Thud Ridge.”<sup>46</sup> The first of these MiG-21 patrols was set up in the beginning of the month, and on 7 July, was thought to have paid off. Tran Ngoc Xiu, flying one of two MiG-21s on patrol over the southern end of Tam Do Mountain, got in behind a F-105 and fired a K-13 heat-seeking missile, which hit—or at least that was what Xiu reported. However, the only F-105 to be lost on 7 July was to AAA at Yen Bai, on the *northern* end of Tam Do. Either Xiu was mistaken, or the K-13 did hit and failed to explode—there is one picture of a F-105 that returned to Thailand with an air-to-air missile imbedded in its tailpipe.<sup>47</sup>

On 11 July, another MiG-21 patrol attacked a F-105 flight, this one heading to strike a POL site near Thai Nguyen. The two MiG-21s, piloted by Vu Ngoc Dinh and Dong Van Song, claimed a F-105 shot down at Son Duong, at the north end of Tam Do. Ironically, though the report of the F-105 being shot down over Son Duong is erroneous, the Thud in question was lost—piloted by Captain William McClelland, who was forced to eject over Laos when his F-105, apparently damaged in the attack, ran out of fuel. Thus, the claim stands, divided between Ngoc Dinh and Van Song.

Other targets were struck during the POL missions. On 13 July, the US Navy launched an attack on the Co Trai bridges between Nam Dinh and Hanoi. The target was struck without incident, but on a hunch, the four F-4Bs of VF-161 (from USS *Constellation*) made one final sweep of the area. This proved fortuitous, as they received a call for help from four Iron Hand A-4 Skyhawks, who were being chased by six MiG-17s. The F-4s intercepted the MiG-17s, and one was shot down by the team of Lieutenant William McGuigan and Lieutenant (jg) Robert Fowler. In undoubtedly the same dogfight, Phan Than Trung claimed an American aircraft, though was not sure what he had hit. No American aircraft were lost on 13 July, so Trung’s claim was overoptimistic.<sup>48</sup>

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<sup>46</sup> Today the area is a national park and vacation spot, renowned for its natural beauty and wildlife, and the approach corridor to Noi Bai International Airport.

<sup>47</sup> Toperczer, *Air War*, p. 14. As to the photo of the F-105, controversy to this day persists on whether the missile in question was a Vietnamese K-13 or an American Sidewinder, the Thud in this case being a lucky victim of friendly fire. The K-13 was a direct copy of the Sidewinder and therefore had the same problems and limitations.

<sup>48</sup> Elward and Davies, *U.S. Navy F-4 Phantom II MiG Killers, 1965-70*, p. 34.

Another Iron Hand flight came under attack the next day, 14 July, this time three F-105F Wild Weasel aircraft, callsign "Panda." Escorting them were four F-4Cs of the 35<sup>th</sup> TFW, among them crews Captain William Swedner and Lieutenant Duane Buttell, Jr., and Lieutenants Ronald Martin and Richard Kriebs. As the Weasels began to engage SAM sites near Noi Bai, one of the F-4s spotted a MiG-21 coming in from high and to the formation's left—the Tam Dao patrol. Swedner turned to engage, but the MiG dived into a thick haze, and Swedner lost him. As Swedner climbed to rejoin the Weasels, Buttell noticed a second MiG-21 coming in behind the three F-105s. He called out, "Panda Three, break right! MiG at five o'clock and closing!" Panda Three replied that he was locked on to a SAM site and could not maneuver, or his Shrike antiradar missile would go wide. Swedner said, "I'll do what I can," and closed in, firing a Sidewinder. Swedner was too close and the missile did not have time to arm, but he achieved his purpose: the MiG pilot broke away from Panda Three and climbed, lighting his afterburner for more speed.

This was a fatal mistake. Weather conditions were clear with no clouds, and the VPAF pilot, by lighting his afterburner, presented Swedner with a perfect Sidewinder shot. He fired a second AIM-9, which promptly detonated in front of the F-4. As Swedner describes it:

"I was really gnashing my teeth now, but told myself to settle down...I still had a good tone, so I fired a third Sidewinder...it appeared to go past him, and I said, "Shit, Duane, we missed!" All of a sudden, there was a huge fireball and pieces of airplane all over the place...I pulled up hard to the left to avoid the debris and as I rolled back right, all I saw was a lot of burning airplane parts, including a complete wing section."<sup>49</sup>

Swedner noticed that they were directly over the runways of Noi Bai, so he hurriedly rejoined the now-retreating Panda Flight. When he returned to Da Nang, he learned his wingman crew, Martin and Kriebs, had also scored. The first MiG had pulled up out of the haze and attacked the last F-4 in the flight with a K-13 missile, but missed. Making the same mistake as his compatriot, the VPAF pilot lit

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<sup>49</sup> Lou Drendel. ...And Kill MiGs: Air to Air Combat in the Vietnam War. (Carrollton, TX: Squadron/Signal Publications, 1984), p. 11.

his afterburner and climbed. Martin, also coming up out of the haze, shot him down with a Sidewinder, though this VPAF pilot was able to eject.<sup>50</sup>

Though the MiG-21s had again come off second best, the MiG-17s of the 923<sup>rd</sup> Regiment were able to exact some revenge. Commander Richard Bellinger, commanding VF-162 off USS *Oriskany*, had his flight of three F-8Es well ahead of the late afternoon Navy strike, hoping that the Vietnamese would interpret this as an unescorted bomber unit. Bellinger may have gotten more attention than he had hoped, for five MiG-17s attacked the formation west of Haiphong. The result was a dogfight worthy of a Hollywood movie, as the eight aircraft engaged in hard turns and runs so low that the pilots often had to pull up to avoid hitting trees or houses. As three of the MiGs went after Bellinger's wingman, whose radio had malfunctioned, Bellinger and the third American, Lieutenant Richard Wyman, came after them. To make matters worse, Wyman's guns jammed. Bellinger climbed, intending to dive down on the MiGs, but then the fourth and fifth MiGs made their attack. Cannon shells from Ngo Duc Mai's MiG-17 shot off most of Bellinger's tailplane and badly holed his right wing, and the F-8 went into a spin. Bellinger managed to regain control and headed out to sea, intending to land at Da Nang since the F-8 was too unstable to land on *Oriskany*. However, the damage was too great, and forty miles from Da Nang, Bellinger was forced to eject. The other two F-8s managed to disengage and return home safely.<sup>51</sup> It had been an eventful day.

There was no letup. On 19 July, a force of F-105s was sent to attack a POL site near Thai Nguyen and were intercepted by two MiG-17s flown by Nguyen Bien and Vo Van Man of the 923<sup>rd</sup>. The four F-105s split into a defensive break, and Van Man turned behind one Thud, shooting it down; the pilot, Lieutenant Stephen Diamond, was killed. Van Man now found himself the target of three vengeful F-105s, and used the AAA fire from Bac Giang to cover his escape; both he and Bien made it home safely. Bien claimed a second F-105 two minutes after Van Man's victory, but the only other Thud lost

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<sup>50</sup> Hanak, p. 31.

<sup>51</sup> Tillman, pp. 138-139. Bellinger was to have another brush with death a few months later, when a fire aboard *Oriskany* trapped him in his room. He survived by worming his way out through a porthole, no mean achievement for a man whose nickname was "Belly."



that day was hit by AAA half an hour after the two MiGs landed at Gia Lam airport. Nguyen Ba Dich of the 923<sup>rd</sup> also claimed a F-4 on 19 July, but postwar records do not bear him out.<sup>52</sup>

The VPAF claimed a RC-47D on 29 July 1966. The RC-47D was a conversion of the famous C-47 Skytrain transport into an electronics intelligence (Elint) gathering aircraft, and was flying in the Sam Neua area of Laos, intercepting radio messages made by the Pathet Lao. Though Laos was considered a “safe” area when it came to MiGs, the RC-47D, on approaching the Laos-Vietnam border, was caught and shot down by a MiG-17 making a high-speed pass. All eight crewmen aboard the aircraft were killed. Luu Huy Chao claimed credit.<sup>53</sup>

Though McNamara continued to ask for weekly reports as to the status of the POL strikes, the campaign was beginning to end, climaxing with “Black Sunday,” 7 August, when no less than six F-105s were lost to ground defenses. All the POL campaign had accomplished as far as war aims were concerned was to force the North Vietnamese to disperse their POL storage sites into small mountain caches or into villages, where the Americans would not strike them. As the CIA predicted, the strikes did little to disrupt the VC/NVA war effort in South Vietnam, since those forces depended very little on fuel. A small dent had been made in North Vietnam’s available supplies, nothing more. McNamara continued to be updated on the POL strikes through August and September, though gradually emphasis was shifted back to the road and bridges campaign.<sup>54</sup>

Air combat continued at a slightly lesser tempo through these months, with the MiG-17s of the 923<sup>rd</sup> Regiment being particularly aggressive. On 18 August, during an Iron Hand flak suppression mission, two MiG-17s made a head-on pass at the four F-105s, fired, and continued on. Major Kenneth Blank of the 388<sup>th</sup> TFW turned hard and ended up behind the two MiGs, whereupon he fired his Thud’s gatling cannon. The lead MiG-17 burst into flames, rolled over, and crashed. Like most air-to-air combat, this one had taken just over a minute.<sup>55</sup> On 5 September, a section of F-8E Crusaders were on

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<sup>52</sup> Toperczer, *Air War*, p. 15, and Hobson, p. 66.

<sup>53</sup> Hobson, p. 68, Toperczer, *MiG-17 and MiG-19 Units*, p. 41.

<sup>54</sup> Van Staaveren, pp. 321-324.

<sup>55</sup> Hanak, p. 32.

TARCAP near Ninh Binh when they were “bounced” by four MiG-17s out of the clouds. Like Bellinger’s fight two months earlier, the battle became a turning fight, where the MiG had the advantage. As he tried to engage a MiG-17, Captain Wilfred Abbott found himself under fire from another MiG, which shot up his F-8 so badly he had to eject immediately, to spend the next seven years as a POW.<sup>56</sup> The 923<sup>rd</sup> Regiment claimed two F-8s that day, but Abbott’s was the only F-8 lost. The identity of the VPAF pilot is unknown.

The next week saw two large dogfights. The first was over the Dap Cau railway bridge on 16 September; three F-4s of the 8<sup>th</sup> TFW, callsign Moonglow, were attacked by at least four MiG-17s of the 923<sup>rd</sup> Regiment, including Nguyen Van Bay, who was the first to spot the three F-4s. Van Bay asked his flight commander for permission to engage, which was granted, though the flight leader wondered if the MiG-17s would be able to catch up to the F-4s. Moonglow Three, piloted by Major John Robertson and Lieutenant Hubert Buchanan, climbed, dropping external tanks, as Robertson called out, “I see MiGs—I’m engaging MiGs!” Van Bay saw the maneuver and cut inside Moonglow Three’s climbing turn.

Buchanan had seen Van Bay closing in, and told his pilot, “This guy’s pulling right in on us. He’s going to shoot anytime now.” Van Bay opened fire and missed as Robertson broke away, but the VPAF pilot stayed on the F-4’s tail. “This is going to be it,” Buchanan said. “He’s corrected the problem.” Van Bay’s cannon fire chopped into the F-4’s right wing, causing enough damage that one of the landing gear broke loose and narrowly missed Van Bay’s canopy. Moonglow Three was finished; Buchanan ejected, though Robertson died in the crash. Van Bay circled around, noted the single parachute, and rejoined the fight, though he was to achieve no further victories that day.<sup>57</sup>

Moonglow Two, piloted by Lieutenant Jerry Jameson and Douglas Rose, also found themselves under attack from a MiG-17, but were able to get away after a few minutes of frantic maneuvering. Getting back into the fight, Jameson got behind one of the MiG-17s, which promptly out-turned the F-

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<sup>56</sup> Hobson, p. 73.

<sup>57</sup> Wetterhahn, pp. 45-46.

4. Jameson managed to get away from this MiG as well, sighted another, and went after it. He was going too fast and overshot the MiG, so Jameson made a hard right turn and spotted yet *another* MiG-17 right in front of him, heading away. Jameson fired two Sidewinders and then broke away as the second MiG-17 came after him. When Jameson had evaded the last of the MiGs, he spotted a burning MiG and a parachute (which may have been Buchanan). Both he and Moonglow Lead, which had fired nearly all his missiles without a single hit, broke off the engagement and got away from the seeming cloud of MiGs.<sup>58</sup>

The second large dogfight of September came on the 21<sup>st</sup>, and once more over Dap Cau. Two MiG-17s, piloted by Nguyen Van Bay and Do Huy Hoang, came after the Iron Hand flight, consisting of three F-105Ds and a single F-105F Wild Weasel of the 388<sup>th</sup>. The MiGs dropped in between the two sections of Thuds, but were unable to close the range to use their guns on the first section, which were going too fast. The Thuds began a shallow bank, allowing the MiGs to close in. It was a trap: the first section was “dragging” Bay and Hoang for the second section. The lead aircraft of that section, piloted by Lieutenant Karl Richter, fired his cannon and hit the MiG-17 of Hoang, who heard a distinct thump. He looked around and noticed that his left wingtip was badly shot up. He broke right, Van Bay going left. Richter and his wingman stayed with the damaged MiG, and Richter’s second burst tore the MiG-17’s right wing off. Hoang remembered, “I thought I was going to be okay, when all of a sudden the plane started to come apart.” The instrument panel exploded in Hoang’s face, peppering him with shrapnel. He ejected. Richter, only 23 years old, was the youngest pilot to shoot down a MiG during the Vietnam War. Hoang’s ordeal was not yet over; mistaking him for a South Vietnamese, local militia tore off his flightsuit, tied him up, and began savagely beating him. Only when North Vietnamese Army soldiers were able to reach the crash site was Hoang recognized and taken to a hospital. Van Bay managed to evade the F-4 MiGCAP and returned safely to Noi Bai.

Not long after Richter shot down his MiG, two other MiG-17s attacked the strike force itself. Four F-105Ds of the 355<sup>th</sup> TFW spotted a MiG low, and the lead section dived to attack. The leading F-105

was able to score a few hits on the MiG-17, but the VPAF pilot was able to climb away, then dive back onto the tail of the lead F-105. Unfortunately for the Vietnamese pilot, this put him squarely in the sights of the second Thud, piloted by Lieutenant Fred Wilson, Jr. Wilson's cannon fire tore off most of the MiG-17's tail, which went into a terminal dive and crashed. The second MiG was chased off by the other Thuds, but either it or possibly another section of MiG-17s from Kep attacked the MiGCAP F-4s of the 8<sup>th</sup> TFW. One F-4, piloted by Captain R.G. Kellems and Lieutenant J.W. Thomas, was damaged and headed south to land at Da Nang. However, the aircraft caught fire near the DMZ, the crew ejected, and were picked up from the sea. The VPAF correctly claimed this aircraft as destroyed. It had been the largest air battle to date of the Vietnam War.<sup>59</sup> A F-105D was also claimed by the VPAF's 921<sup>st</sup> Fighter Regiment, and one Thud, flown by Captain Glendon Ammon, was shot down that day. Ammon reported being hit by antiaircraft fire, and nothing more was ever heard from him or about him, until his remains were repatriated in 1978. Moreover, neither the name of the MiG pilot, nor that pilot's location when he claimed the F-105, is in VPAF records. Ammon was likely shot down by AAA, but without proof from either side, this must remain a mystery.<sup>60</sup>

#### *Fall and Winter, 1966*

Though the POL campaign stuttered to a halt in September, airstrikes continued in North Vietnam, especially against targets between Hanoi and Haiphong (since ROE restrictions prohibited strikes inside the zones around the cities) and the Northeast Railway. The VPAF, despite its losses through the summer, still had plenty of pilots and aircraft, with replacements of both from China and the Soviet Union arriving steadily. This allowed them to sortie every day during the latter half of 1966. The

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<sup>58</sup> Hanak, p. 33.

<sup>59</sup> Hanak, pp. 33-34, Hobson, p. 75, Wetterhahn, pp. 50-51. Richter was regarded as one of the outstanding F-105 pilots of the war, flying well over the 100 missions that was required during a tour. Unfortunately, Richter perhaps pushed his luck too far and was killed at Mu Gia Pass in 1967.

<sup>60</sup> Istvan Toperczer. MiG-21 Units of the Vietnam War. (Oxford: Osprey Publishing, 2001), p. 85; Hobson, p. 75.

problems with ground-air coordination had been worked out, and the VPAF pilots remained under the control of the GCI controllers at Noi Bai and Bac Mai, who were becoming more skilled at vectoring their interceptors into close range with American strike forces without being detected. The VPAF was also developing a pattern that would stay constant for the balance of Rolling Thunder—using MiG-17s for low-level work “in the weeds,” and MiG-21s for high interception, using each fighter’s advantages. Despite this increased activity—by December, both USAF and Navy strikes in the Pak Six area could count on running into MiGs on every mission—aerial battles resulting in shootdowns happened about once a month, with a final spurt of action in December. Most of the time, the VPAF contented itself with forcing the strike aircraft to jettison their bombs early and then retreating to the safety of their bases or China, rather than stay and fight it out with the escorting fighters.

5 October marked the first shoot down since 21 September. On this date, a F-4C of the 8<sup>th</sup> TFW, piloted by Lieutenant E.W. Garland and Captain William Andrews, was shot down. Upon his rescue (Andrews was killed in the crash), Garland reported he had been hit by a K-13 fired by a MiG-21. Indeed, the F-4 flight, which was escorting EB-66s southwest of Yen Bai, had received a MiG warning from the College Eye EC-121 before noticing that Garland’s aircraft was missing. Though this is not claimed on Toperczer’s list, Argentine aviation historian Diego Zampini has uncovered evidence that Garland and Andrews were shot down by Senior Lieutenant Shchbakov, the Russian advisor to the 921<sup>st</sup> Regiment. This would explain why the kill is not claimed by the VPAF.<sup>61</sup>

9 October was the first of these once-a-month intense air battles, this time over Phu Ly, a railroad bridge between Hanoi and Haiphong. The US Navy laid on a full “Alpha Strike,” a complete strike package with Iron Hand flak suppressors, TARCAP escort, and strike aircraft, with standby units for rescue and RESCAP coverage. Flying in the TARCAP escort was Lieutenant Commander Richard Bellinger, who had been shot down by a MiG back in July. This time, Bellinger had planned a trap of

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<sup>61</sup> Zampini, “Russian Pilots in the Vietnam War,” personal website, [www.dzampini.boom.ru](http://www.dzampini.boom.ru). It is reported that Shchbakov claimed an EB-66 instead of a F-4, but given the Russian pilot’s experience, this is unlikely—the EB-66 is twice the size of a F-4, which also has a very distinct shape.

his own. Orbiting low behind MiG Ridge, and thus shielded by terrain from Vietnamese radar, Bellinger waited; he was radioed contact information by his own ace in the hole, a Grumman E-1B Tracer airborne early warning aircraft orbiting over the Gulf of Tonkin. As four MiG-21s were detected passing overhead, Bellinger and his three wingmen lit their afterburners and climbed into position directly behind the MiGs—a perfectly executed ambush. The MiGs were spared, however, when one of them spotted Bellinger's F-8 and must have radioed a warning, for the formation quickly split apart. Bellinger's target dived for the ground, with the American close behind. Bellinger fired two Sidewinders and wondered if they would hit—the Sidewinder's heat sensor could easily be confused by the heat coming off the rice paddies below. This was not true this day, as both Sidewinders hit. The MiG was wrapped in flames and crashed. Bellinger himself nearly followed, as his F-8 was heading towards the ground at high speed. He managed to pull out with about 200 feet to spare and returned to USS *Oriskany*, having gained revenge for his July shoot down and becoming the first naval aviator to shoot down a MiG-21.<sup>62</sup>

The other F-8s came up empty, and either this or another MiG-21 formation got past the escorts and struck the Iron Hand flight, consisting of two F-4Bs from USS *Coral Sea*. The lead aircraft, piloted by Lieutenant Commander Charles Tanner and Lieutenant Ross Terry, reported being hit hard in the rear fuselage. The F-4 began coming apart immediately and both men ejected, somehow without injury despite the F-4 being upside down and falling at Mach 1.3. Controversy exists over this shoot down, as some reports cite the F-4 as being hit by a 100 millimeter flak shell or by a K-13 fired by Nguyen Van Minh, whose MiG-21 was in the area. Van Minh claimed two F-4s on 9 October, and while the single claim has some credence to it, both Americans were tortured extensively until they admitted to being shot down by a MiG-21, though they steadfastly maintained once they were released in 1973 that it was ground fire. Most evidence (including Vietnamese) supports Tanner and Terry's claim, and so Minh's claim is likely false.<sup>63</sup>

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<sup>62</sup> Tillman, pp. 139-140.

<sup>63</sup> Toperczer, *MiG-21 Units*, pp. 10-11; Hobson, p. 77.

The final occurrence on this day was directly related to Tanner and Terry being shot down. As the rescue forces attempted to get to the two Phantom aircrew, MiG-17s attacked the four A-1Hs of VA-176 providing escort for the rescue helicopters. Once more, an unlucky VPAF pilot misjudged his speed and overshot the much slower A-1 piloted by Lieutenant (jg) William Patton. Patton opened fire with his four 20mm cannons and the MiG-17 pitched upwards, on fire. The pilot ejected, and according to Navy legend, Patton added insult to injury by radioing over an international frequency, “You’ve just been had by a Spad, dad. Humiliating, isn’t it?” All four A-1s and the helicopters returned safely to their carriers, but without Tanner and Terry, who had been captured.<sup>64</sup>

Nearly a month passed before the next air battle, and like the battle exactly a month earlier, it started as the VPAF attempted to shoot down an EB-66. The four escorting F-4Cs of the 366<sup>th</sup> TFW detected the MiGs, but because of the restrictions on BVR shots, could not fire. Major James Tuck, flying backseat for Lieutenant John Rabeni, Jr., spotted two VPAF aircraft and identified them as MiG-21s. As the F-4s turned to attack, the lead MiG-21 fired a K-13 at the EB-66, which was diving away from the fight. The missile missed, and the lead section of F-4s—Tuck/Rabeni and Lieutenants Wilbur Latham, Jr. and Klaus Klause—pursued the MiG-21 into a dive. Rabeni fired three Sparrows, the last of which destroyed the MiG’s engine; the pilot ejected. However, the second MiG-21 had gotten on the tail of the two Phantoms, which broke away to engage it. Latham shot down a MiG-21 with a Sidewinder—either the one that had been pursuing them, or a third one hitherto unseen (the VPAF were known to attach a third MiG at some distance behind a two-ship formation to confuse American radar). The battle lasted less than three minutes.<sup>65</sup>

December 1966 was to prove the busiest month since August, as far as air combat went, possibly because the weather had been bad in October and November. It started on 2 December, when VPAF MiGs may have directly shot down a F-105D and indirectly a F-4C. The F-105, piloted by Captain Monte Moorberg, was seen to be afire, and the aircraft went straight in without the pilot ejecting.

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<sup>64</sup> Hobson, p. 77. Patton’s radio transmission is “scuttlebutt” that cannot be pinned down to a single source.

<sup>65</sup> Hanak, p. 35.

Moorberg's Thud was reported lost to 37mm flak, but it is possible that a MiG-17 was responsible, as the VPAF pilot (unidentified by VPAF records) claimed the F-105 near Noi Bai, where Moorberg was lost. The F-4C, piloted by Captain Hubert Flesher and Lieutenant James Berger, was maneuvering to attack a flight of MiG-21s when a SAM blew it apart. Flesher and Berger were lucky to escape with their lives, and both would spend the rest of the war in prison. Another F-4, piloted by Major Donald Burns and Lieutenant Bruce Ducat, was also shot down by a SAM a few minutes later. Both F-4s are claimed by the VPAF as being shot down by MiG-21s, but both aircraft were reported by their wingmen as being downed by SAMs. Burns survived, but Ducat died in the Hanoi Hilton. <sup>66</sup>

On 4 December, the weather cleared enough for the 388<sup>th</sup>'s afternoon strike to get into Pak Six. In the first flight was Captains Ray Bryant, "Mac" McMahon, and Clint Murphy, and Major Roy Dickey. As the four F-105s dodged particularly heavy 85mm antiaircraft fire, Bryant spotted MiG-17s orbiting below, waiting to attack the F-105s as they pulled up from their bomb run, when the Americans would be losing airspeed in the climb. Murphy tells the story:

"As I looked back to locate Ray and Mac, there were two MiGs about 3000 feet behind them...immediately I switched my sights from dive bomb to radar air-to-air, and started down on them. They were mine. I was going to work on number two [MiG], then pull up and work on lead. Just as I was closing, Ray called off, 'I am hit.' I saw the MiGs closing on Ray starting to break off to the right, so I forgot them and headed for Ray. About that time my aircraft pitched violently and sounded as though I had taken a hit. It was still going and I had no indications of severe damage; therefore, I just kept pressing on to catch up with Ray. At about that time, number four (Roy [Dickey]) said, 'One is shooting at you, Three, and I have one on my tail.' I punched [released] the [wing external fuel] tanks...jinked left and back to the right to look for Roy. All I saw were two MiGs low, but no threat. About that time Roy said, 'I shot that MiG down.' I wanted to kiss him right then; however, I figured at Mach One plus over Hanoi was not the time or the place. Besides that, he was not that cute." <sup>67</sup>

Roy Dickey had hit the MiG-17 behind Murphy with 20mm gunfire and struck the MiG's fuel tanks, which wreathed the MiG in flames. He then was able to evade the MiG on his own tail by diving,

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<sup>66</sup> Toperczer, *MiG-17/19 Units*, p. 89; Hobson, p. 82.

<sup>67</sup> Charles Murphy. "F-105 MiG Kill," *Red River Valley Fighter Pilots Association Yearbook*, ed. Pamela Wood (Paducah, KY: Turner Publishing, 1993).



leveling off at fifty feet above the ground.<sup>68</sup> All four F-105s returned safely to Korat RTAFB, albeit nearly out of fuel, with both Bryant and Murphy's Thuds damaged.

On 5 December, the VPAF struck back, attacking an Iron Hand flight, which did not enjoy the same sort of close coverage as the main strike force. On this occasion, a flight of four MiG-17s (VPAF records identify the attackers as MiG-21s) attacked four F-105s at the northern end of Tam Dao, and one MiG hit the F-105 of Major Burriss Begley. Begley, on fire, made for a safe bailout zone in Pak Five, but as the Thud crossed the Red River, it apparently exploded, and Begley was killed. The VPAF claimed two aircraft on 5 December, a F-105 and a F-4, but no F-4s were lost on that date. VPAF records do not list the pilot of the MiG; it may have been Shchbakov.<sup>69</sup>

The VPAF scored again three days later, when the 355<sup>th</sup> TFW's F-105s returned to strike the Phuc Yen rail yard. As had happened on 4 December, the weather precluded a strike there, and the Thuds went after the POL storage site instead, near where the 921<sup>st</sup>'s MiG-21s were patrolling Thud Ridge. One MiG-21 went after Lieutenant Colonel Donald Asire, one of the 355<sup>th</sup>'s squadron commanders. Asire dived into a cloud with the MiG behind, and either was shot down or lost control and crashed, when one of his external drop tanks failed to jettison. This loss is not in VPAF records, for two possible reasons. One, Asire indeed did crash due to mechanical failure and not direct enemy action (though "maneuvering" is considered direct cause in a few American aerial victories), and so the VPAF did not officially claim Asire's F-105. The second reason is that this is one of two victories (the other being the loss of the F-4C on 5 October) directly attributed to Shchbakov.<sup>70</sup>

The VPAF's final aerial victories of 1966 occurred on 14 December, when the hard-luck "Takhli Wing," the 355<sup>th</sup>, returned to Pak Six, this time going after the Yen Vien rail yard. Two MiG-21s made a high-speed pass, firing their K-13s into the formation before the escort could intervene. One K-13 found its mark, hitting Captain R.B. "Spade" Cooley's F-105. The Thud literally disintegrated; the first notion Cooley had that he had been hit was when he realized he was sailing through the air, still

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<sup>68</sup> Hanak, p. 35.

<sup>69</sup> Toperczek, *Air War*, p. 16, and Hobson, p. 82.

holding the throttle in his left hand with his face pressed against the remains of the windscreen. Cooley was injured in the explosion, but luckily was rescued by USAF HH-3s (callsign "Jolly Green"). The VPAF claimed three F-105s on 14 December, but Cooley's was the only F-105 lost that day, shot down by Dong Van De.<sup>71</sup>

The last aerial victories of 1966 went to the US Navy. For some time, the VPAF had been using Antonov An-2s (codenamed "Colt" by NATO) to make quick night drops of supplies across the DMZ, or to attack South Vietnamese ships supporting commando raids on the North Vietnamese coast. The An-2 was a large biplane first flown just after World War II, but despite its obsolete appearance, it was still capable of carrying small loads in a transport role, or rockets under the lower wing as an emergency bomber. The US Navy, having known about the An-2 attacks since they began in March 1966, got clearance to do something about it. Two An-2s were shot down by F-4Bs from USS *Kitty Hawk*, crewed by Lieutenant Dennis Wisely and Lieutenant (jg) David Jordan (of VF-114), and Lieutenant David McCrea and Ensign David Nichols (of VF-213). The F-4s used a single Sparrow each, which most likely obliterated the thin-skinned An-2s.<sup>72</sup>

### *1966 in Retrospect*

The VPAF had reason to be proud of its conduct in 1966, having recovered from the dangerous days of late 1965. By its own reckoning, it had engaged the Americans 196 times and shot down 54 American aircraft, later revised to between 30 and 34. In actuality, it had downed only thirteen aircraft, but nonetheless the VPAF's ability to contest virtually every American attack in late 1966 meant they could no longer be discounted as a "nuisance" by the opposition. The VPAF also had made December a particularly painful month for the USAF, with the loss of three F-105s in a little over a week. To celebrate the end of a successful year, pilots from both the 921<sup>st</sup> and 923<sup>rd</sup> Regiments were invited to

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<sup>70</sup> Hobson, p. 83; Zampini, "Russian Pilots." According to Hobson, the MiGs were MiG-17s, not MiG-21s.

<sup>71</sup> Toperczer, *Air War*, p. 16; Hobson, p. 84.

Hanoi, where the regiments were honored; Tran Hanh, Lam Van Lich, and Nguyen Van Bay were singled out for individual medals. At the time, Van Bay was the leading scorer, with five kills awarded to him by the VPAF. By Western standards, this made him an ace, but at best two kills (Black's F-8E on 21 June and Robertson/Buchanan on 16 September) can be directly attributed to Van Bay by this time.<sup>73</sup>

For the Americans, 1966 had been a year with mixed results. USAF aircrew had shot down 17 MiGs (five by F-105s, the rest by F-4s) and US Navy aviators an additional eight VPAF aircraft (four by F-8s, three by F-4s, and one by an A-1), adding up to a respectable 25 aircraft. However, the kill ratio was still too narrow for comfort, and December had actually seen the air battle shift to the favor of the North Vietnamese. Both USAF and Navy F-4 aircrews were still making the mistake of turning with the more nimble MiGs, though their superior experience usually got them out of a bad position. The F-8 was doing comparatively well, and the success of the F-105s in defending themselves was a bright spot. However, the fact that the Thuds were being forced to defend themselves said nothing good about the F-4s' ability to protect them. Missiles were still a problem as well: though the Sidewinder had performed fairly decently, the Sparrow was having no end of difficulty. Clearly, something had to be done, and engineers in the United States were devising an interim solution in the form of external gun pods and improved missiles.

Most frustratingly of all, the obvious solution to the MiG threat, destroying their bases, was impossible because of McNamara and Johnson's refusal to let them be targeted. The North Vietnamese themselves wondered why Noi Bai and Kep had not been hit, and so poured hundreds of man-hours and concrete in an effort to prepare the MiG bases for American attack. Pilots in the USAF came up

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<sup>72</sup> Elward and Davies, *U.S. Navy F-4 Phantom II MiG Killers, 1965-70*, p. 33.

<sup>73</sup> Toperczer, *Air War*, p. 17.

with a plan: if the fight could not be brought to the North Vietnamese, then the North Vietnamese would have to be brought to the fight.

## ***1967: The Longest Year***

### *Introduction*

What was to become the most intense year of the air war over North Vietnam began literally with a bang on 2 January 1967. The 8th TFW, known as the Wolfpack and led by the charismatic Robin Olds, planned and executed an elaborate trap for the VPAF. Over the course of a three-day period, the VPAF's available MiG-21 force was mauled in air combat with the Wolfpack. Olds' example led the way for other USAF units in the theater; armed with slightly improved missiles and gunpods, the F-4 wings began to systematically destroy the VPAF in air battles. This peaked in April-June 1967, as McNamara finally allowed airstrikes on the MiG bases themselves. Though the VPAF was to score notable air victories, namely on 30 April, it was fighting for its survival. By late June 1967, the VPAF had barely enough aircraft to outfit a single squadron, let alone defend North Vietnam. The US Navy was also doing its part in reducing the VPAF to a shadow of its former self.

As was often the case in the Vietnam War, the United States was too quick to declare victory. The pressure on the MiG bases was lessened as emphasis was shifted to strike bridges. The VPAF slowly recovered during the summer of 1967, coming up with new tactics and rebuilding its confidence. Led by its own hero, Nguyen Van Coc, the VPAF recovered from its near extinction in June 1967 and by November was once more fighting the Americans on virtually every mission into Pak Six; by December, it was winning the air war over North Vietnam.

### *Operation Bolo*

Before 1966 ended, General William "Spike" Momyer, commanding 7<sup>th</sup> Air Force in Saigon, ordered Colonel Robin Olds of the 8<sup>th</sup> TFW to meet with him on 22 December. The discussion centered around a fighter sweep across North Vietnam—not a MiGCAP mission, but a day devoted completely to shooting down MiGs. Besides the political restrictions, there were a number of problems with such a mission—the VPAF had to be induced to come up from their bases, and a huge group of F-4s ranging

across North Vietnam would be an obvious invitation to air combat that the VPAF would likely decline. Moreover, even if the VPAF did get into the air, the MiGs could either land or run to China, thereby avoiding air combat.

Robin Olds was—and is—considered a legend among the American fighter pilot community. The son of a fighter pilot, Olds had served in World War II, shooting down seven German fighters. Between then and Vietnam, Olds had gained a reputation as a maverick, to put it nicely, having commanded various fighter units in Europe; his last major assignment, before the 8<sup>th</sup> TFW, had been commanding a F-101 Voodoo wing in England, where he formed an aerobatic team to better train his men in combat maneuvers. This had landed him in bureaucratic hot water, but Momyer, despite personally disliking Olds, had put him in command of the 8<sup>th</sup>, which, despite its enviable air combat record, suffered from low morale. Olds turned the group around, mainly by proving that, despite his rank, he was no better than the newest lieutenant. He only gradually worked into the flight leader position and was not afraid to drink with his pilots—or the enlisted ground crews, which was extremely rare for officers in any service. He also voraciously studied maps and intelligence reports, something that was to help immeasurably in the upcoming operation. Olds' command of the 8<sup>th</sup> was ably complemented by his vice commander, Colonel Daniel “Chappie” James, Jr. One of the best-known and respected African-American officers in the USAF, James had flown highly dangerous forward air control missions in Korea before transitioning into jets; he and Olds had been close friends for nearly seven years.

The idea for what would become Operation Bolo had originated in discussions between Olds and four of his pilots, Captains John Stone and Ralph Wetterhahn, Major J.D. Covington, and Lieutenant Joseph Hicks. Olds had pitched the plan to Momyer at a conference in the Philippines earlier in 1966 and had it rejected, but Momyer had reconsidered. After the second meeting, Bolo was approved.<sup>74</sup>

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<sup>74</sup> John Darrell Sherwood. Fast Movers: Jet Pilots and the Vietnam Experience. (New York: St. Martin's Press, 2001), pp. 11-31.

The central idea of Bolo was to build an elaborate trap, making the North Vietnamese believe that Olds' F-4 group was actually a group of bomb-laden F-105s. This had worked once before, in the first F-4 kills scored back in 1966. To achieve this ruse, Olds' F-4s would use F-105 callsigns, aerial refueling routes, and airspeeds to simulate a strike force; since the North Vietnamese ground control could differentiate between the F-4s and F-105s by the latter's use of electronic countermeasures (ECM) pods, the F-4s would carry the same pods. This would also give the F-4s a better edge against the SAM threat. To further lull the North Vietnamese, a typical Iron Hand flight of Thuds would precede the "strike force," and F-4s from the 366<sup>th</sup> TFW, at Da Nang, would openly fly as the standard MiGCAP. Timing was absolutely essential, as the plan called for a flight of F-4s to arrive in North Vietnam every five minutes to ensure coverage of all four known MiG bases (Noi Bai, Kep, Gia Lam, and an auxiliary field at Cat Bi near Haiphong) and to cut off the China escape routes. Well over a hundred aircraft would be involved in the mission. The day was set for 2 January 1967, and the various crews involved were extensively briefed on their role. Among the items in the briefing were the use of the ECM pods—which the F-4 pilots were trained to use only on nuclear strike missions, raising more than a few eyebrows—and advice not to get into a turning fight with the MiGs.<sup>75</sup>

2 January dawned with poor weather, a not uncommon occurrence at the beginning of the monsoon season. After delaying for an hour, Bolo went forward, Olds well aware that the various units would only get a single shot at the plan. Using F-105 callsigns, Olds' force refueled over Laos and entered North Vietnam. As they neared the Red River, Olds radioed "Green 'em up," which was Thud parlance for arming the bombs. Lieutenant Clifton Dunnegan, flying backseat with Stone in Rambler One, then requested a "Doppler check," done only by a F-105, which used a Doppler-style radar.

At first, it seemed that Bolo would come up empty-handed. Olds' flight (callsign, appropriately, Olds) arrived on time near Noi Bai about three in the afternoon, with James' flight (callsign Ford) five

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<sup>75</sup> Sherwood, pp. 32-35; Hanak, pp. 35-37.

minutes behind, but no MiGs rose to challenge them. The poor weather evidently had led the VPAF to believe there would be no flying; the cloud cover was so thick that the ground could not be seen, which prevented a direct CAP over the MiG bases. As Olds swung northwest around Noi Bai towards Thud Ridge, his backseater, Lieutenant Charles Clifton, detected a low and fast contact dead ahead. Olds Three went after it to make the intercept, but lost it in the clouds. Soon after Olds Three rejoined the flight, James reported a MiG-21 closing in from behind Olds flight, and almost immediately thereafter two more were sighted coming in from the west. It was a classic sucker play, with the low MiG distracting the Americans. The only difference this time was that the MiGs were not engaging F-105s or a small number of F-4s.

Olds flight turned to fight, and Robin Olds fired two Sparrows at the western MiGs. The MiGs dove away, and Olds chased one, firing two Sidewinders. All four missiles missed. He pulled off and allowed his wingman, Wetterhahn and Lieutenant Jerry Sharp, to attack. Wetterhahn fired two Sparrows, one of which detonated at the base of the MiG's tail. For a moment, Wetterhahn thought he had missed, but then the MiG pitched upwards, rolled end over end, and went into a terminal spin, missing most of its tail.<sup>76</sup>

Wetterhahn had no time to celebrate his victory, for the MiG-21 behind them was closing in to fire. "Break right, we've got one at our six [o'clock]!" Wetterhahn radioed, and three of the F-4s of Olds flight made a hard turn right. Olds Four (Captain Walter Radeker III and Lieutenant James Murray) broke right and made a high speed dive and climb, known as a yo-yo maneuver, coming up behind the pursuing MiG-21. Radeker fired a Sidewinder which hit the MiG's tail, causing the aircraft to act as if it had been kicked. Trailing smoke, the MiG also went into a spin and disappeared into the clouds.<sup>77</sup> Radeker or Murray may have been the pilot who continually kept calling out "I got the sonofabitch! I

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<sup>76</sup> Sherwood, pp. 35-36.

<sup>77</sup> Hanak, pp. 37-38.



got the sonofabitch!”), as reported by Dunnegan, who was just arriving with the third flight (callsign Rambler).<sup>78</sup>

It was Robin Olds’ turn. As Radeker took on the MiG-21 behind him, Olds engaged his afterburner and climbed hard, then throttled back as he hung upside down, tracking the remaining MiG as it flew below him; Olds was timing his roll and dive perfectly to end up behind his target. Olds dropped in behind and had the MiG-21 outlined against a blue sky. It was perfect Sidewinder parameters, and Olds fired two for good effect. One hit, blowing off one of the wings.

Behind them, James’ Ford flight was under attack. Using the same method as they had with Olds’ flight, two MiG-21s approached from the west while another came up from behind, forcing the F-4s into a turning fight. As James turned to engage the western MiGs, his backseater saw the rear MiG-21 closing in on Ford Three and Four. James abandoned his attack, called for the second section to break right, and reversed to attack the rearward MiG. The VPAF pilot broke left, seeing James coming in, and the two passed canopy-to-canopy. James and his wingman crew (Captain Everett Raspberry and Lieutenant Robert Western) barrel-rolled behind the MiG-21; James’ first Sidewinder shot missed, and he spotted the other two MiGs coming head-on to assist their comrade. James told Raspberry to go for the MiG in front and fired two Sidewinders at the oncoming MiG-21s, both of which missed. Raspberry’s Sidewinder did not; James saw the fuel tanks burst into flame, and the MiG fell burning into the clouds.<sup>79</sup>

With Olds and Ford flights running low on fuel, they had to depart the area, just as Rambler flight spotted four MiG-21s coming in from the left, with two more further off in the same direction. By now, both the GCI and the MiGs had realized it was a trap, and this MiG flight broke away to disengage. Stone, perhaps a little overeager, broke left to engage and nearly caused a midair collision with Rambler Four, Major Philip Combies and Lieutenant Lee Dutton. This proved to be fortuitous, as

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<sup>78</sup> Drendel, p. 12.

<sup>79</sup> Hanak, pp. 39-40. The Sidewinders in use during the Vietnam War, the AIM-9B and D, could only home on the heat of a tailpipe, requiring pilots to fire from behind. Modern versions of the Sidewinder, the AIM-9L, can guide from any direction, sensing the heat of the aircraft’s flight systems or the reflection of the sun.

Combies ended up high and behind the MiG formation. He fired two Sparrows; the first immediately dived into the clouds, but the second guided and blew up the MiG-21, the pilot ejecting.

The fifth and sixth MiG-21s that had been trailing the first four now entered the fight, going after Rambler One and Two. Stone and his wingman (Lieutenants Lawrence Glynn and Lawrence Cary) evaded the attack, and Stone resumed his pursuit of the remaining three MiG-21s in front of him. Glynn, however, had not seen Stone roll back into the attack and joined up with Combies. Stone fired three Sparrows at one MiG; the second hit, causing an explosion; the pilot, like his wingman a few seconds before, ejected.

Stone had temporarily lost sight of the last two MiGs, but picked them up again and turned to attack. At that point, Rambler Three warned him that yet another MiG-21, which had popped up out of the clouds, was behind him. Stone managed to evade.

The two MiGs were heading for China at top speed, but went into a defensive break (one going high, the other low) when Combies and Glynn pursued. Glynn fired two Sparrows, destroying the MiG; Glynn's F-4 was slightly damaged by the explosion. Somehow, the VPAF pilot was able to eject. Combies fired off all his remaining missiles at the last MiG-21, but this pilot was luckier than the others: all of the missiles missed, though one Sidewinder might have damaged the MiG. Two more MiG-21s arrived, but after one pass (in which Rambler Three fired a Sparrow that simply fell off the launch rail), they dove back under the clouds, and Rambler flight, low on fuel, broke off the engagement and ended Operation Bolo.<sup>80</sup>

It had been an incredible day for the USAF in general and the 8<sup>th</sup> TFW in particular; the three flights claimed nine MiGs. Seven were later confirmed, with a kill awarded to Olds/Clifton, Radeker/Murray, Raspberry/Western (the latter being the first African-American "MiG Killer" of the Vietnam War), Wetterhahn/Sharp, Combies/Dutton, Stone/Dunnegan, and Glynn/Cary. The 8<sup>th</sup> celebrated that night in true fighter pilot fashion. Olds also instituted a tradition among the 8<sup>th</sup> that brought the Wing closer together as a unit—the successful "MiG-killing" pilots had to buy a round at the Officer's Club, the

NCO Club, and the Airman's Club, each. While this was expensive for a pilot's salary, it also was a way of thanking the support personnel who maintained the aircraft.<sup>81</sup>

For the VPAF, it had been an unmitigated disaster. The loss of seven MiGs represented almost half the available MiG-21s in the VPAF inventory, although at least five of the pilots had been able to eject. The VPAF admitted to the loss of five MiG-21s during Bolo, though all the pilots survived; among these pilots was Nguyen Van Coc, who would be heard from later. Given the USAF's generally cautious allowance on MiG claims, the USAF number is probably accurate; from after-action testimony, it is possible that Radeker/Murray's kill might have been able to recover from its spin, or Raspberry/Western's target somehow managed to get the fire out. Neither are particularly likely, so the claims stand without other corroborating evidence from the VPAF.<sup>82</sup>

And it was not yet over. On 6 January, with the weather still precluding actual strikes, 7<sup>th</sup> Air Force sent up the usual two-ship weather reconnaissance mission, which usually consisted of two RF-101 Voodoos or two RF-4C photo-reconnaissance Phantoms. The North Vietnamese were used to such missions, and occasionally MiGs attacked them, as it was known that these aircraft carried no armament. On 6 January, however, the two aircraft were fully-loaded F-4Cs of the 8<sup>th</sup> TFW, piloted by Captain Richard Pascoe and Lieutenant Norman Wells, and Major Thomas Hirsch and Lieutenant Roger Strasswimmer. Both F-4s were the only American aircraft in Pak Six, and so had the freedom to fire on anything that appeared on their radar; they also had EC-121 College Eye support.

The two F-4s traveled for some twenty minutes along the Red River, over solid clouds, which was frightening to even veteran pilots: with such an undercast, it was impossible to see a SAM missile until it was about to hit one's aircraft. The two aircraft descended under the clouds, flew near Noi Bai, and saw nothing other than a single heavy flak barrage. The F-4s, reaching the limit of their fuel, climbed back above the clouds and headed for home, about the time that College Eye radioed, "Bandits bearing 310 from Bullseye, forty miles." In pilot shorthand, that meant that MiGs were flying forty miles

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<sup>80</sup> Hanak, pp. 40-41.

<sup>81</sup> Drendel, p. 18.

northwest of Hanoi—"Bullseye"—crossing ahead of the two F-4s. Even when acquired visually, the four MiG-21s made no attempt to turn into the Americans; it was possible that the radars had lost contact with the F-4s, but more likely that the GCI had determined that the Americans were RF-4s and therefore no threat. As the F-4s turned behind the MiGs, both Pascoe and Hirsch fired two Sparrows each. One of Pascoe's Sparrows connected, and the stricken MiG-21 climbed, burning, then rolled over and dived into the clouds, completely afire. Pascoe then sighted on the second MiG in the formation, but Wells spotted the remaining two MiG-21s turning to get in behind Hirsch. The two F-4s turned to engage, Pascoe firing three Sidewinders that were dodged by the two MiGs. The third MiG abruptly turned away and disappeared into the clouds, leaving his wingman against the two F-4s. This MiG pilot was no novice and managed to keep Hirsch from getting a firm lock on him, but finally Hirsch was able to fire a Sparrow. The VPAF pilot evaded the Sparrow in a hard climb, but in the process the MiG-21 stalled. As the Americans watched, the MiG pilot fought to regain control, and finally ejected before the MiG entered the cloud base; the battle had taken the aircraft over mountainous ground, and the VPAF pilot was taking no chances. The Americans returned to Ubon, and two more MiGs went up on the 8<sup>th</sup> TFW's scoreboard.<sup>83</sup>

The loss of two more of the precious MiG-21s (only the second MiG pilot had ejected this time), again to a ruse, came as another shock. The VPAF decided to ground the MiG-21s until numbers could be replenished and tactics redefined. For now, the MiG-17s would have to shoulder the burden of air defense. Minister of Defense Vo Nguyen Giap ordered the creation of the 317<sup>th</sup> Air Division, which would directly integrate the two fighter regiments with SAM and GCI units, rather than having the MiG units report directly to VPAF headquarters. This would improve coordination, but may also have reflected a loss of confidence by Hanoi in the VPAF's commanders after the debacles of January. Bolo probably served to reduce overconfidence in VPAF ranks; it is noteworthy that VPAF records freely admit the loss of so many aircraft, something not generally found in the Vietnamese narratives.

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<sup>82</sup> Toperczer, MiG-21 Units, pp. 13.

<sup>83</sup> Drendel, p. 17, 20.

Opposing every American raid, as had been done so well in December 1966, also had to come to an end as the VPAF fought to conserve its pilots and aircraft.<sup>84</sup> On the American side of the hill, the events of early January were a huge morale boost that was desperately needed by the USAF, though it was recognized that Bolo had been something of a “one-trick pony,” in that the VPAF was not likely to fall for a ruse a third time.

*Thuds and Frescos: 5 February-19 April 1967*

Rolling Thunder continued unabated, except when the monsoon cancelled missions. SAMs took a particularly heavy toll during this time, making up for the lack of a MiG threat; the VPAF went back to its pre-late 1966 policy of only contesting American attacks on vital targets, of which there were not many. On 5 February, a MiG-17 of the 921<sup>st</sup> Fighter Regiment, pilot unknown, claimed a F-4 west of Hanoi, but no American aircraft were lost on that date. Another month passed before significant air combat, on 10 March, the date of the first American raid on the Thai Nguyen steel plant. This was indeed a significant target, and the VPAF sent MiGs into the air.

The MiGs launched that day seemed to concentrate particularly on the Wild Weasel and Iron Hand flights. The MiGs made several passes at the first Wild Weasel flight, and while they scored no hits, they certainly made an already dangerous mission more difficult, because the Americans could not devote their entire attention to either avoiding flak or to attacking the assigned SAM site covering the steelworks. The leading Weasel was shot down by flak and the two other Thuds, a two-seat F-105F and single-seat D, were damaged. The remaining Thuds, despite their damage, made four passes and destroyed the SAM site; the remaining Weasel pilot, Captain Merlyn Dethlefsen, was awarded the Medal of Honor.

The Iron Hand force covering the main strike aircraft arrived as Dethlefsen made his final run. As Lieutenant Colonel Philip Gast and Captain Max Brestel attacked the antiaircraft guns around Thai

Nguyen, two MiG-21s arrived and angled towards Gast. Brestel chased them off and then delivered his ordnance. As the two Thuds pulled off the target, Gast spotted eight MiG-17s heading north and told Brestel he was going after the last four in line. While he attacked two of the MiGs, the other two turned behind Gast. Brestel called out a warning, closed the distance to the nearest MiG, and fired twice. The second burst tracked through the canopy, probably killing the pilot; the MiG-17 rolled left and crashed. Brestel then fired on the other MiG behind Gast, again hitting twice. This MiG abruptly pitched upwards, literally flipped over Brestel's canopy, and disappeared behind. Gast, who had not gotten any hits, and Brestel decided not to push their luck with the remaining MiGs and headed for Takhli. After review, both MiG-17s were credited to Brestel by the USAF, making him the first USAF pilot to score two confirmed victories in a single mission.<sup>85</sup>

The Son Tay barracks, northwest of Hanoi, came under attack on 26 March, meriting a response from the VPAF. The main force consisted of 20 F-105s, accompanied by the now-usual Wild Weasel SAM suppression flight and F-4 top cover, the latter from the 8<sup>th</sup> TFW. Commanding the force was Colonel Robert Scott, the wing commander of the 355<sup>th</sup> TFW. The Thuds were attacked by two MiG-21s diving in from on high south of the target, but their missiles went wide. Lieutenant Colonel Daniel Salmon, flying in the second element behind Scott, called out, "Two MiG-21s on us, Lead, but no sweat." Without an internal gun, the MiG-21s had fired their missiles and were unable to do more, and Salmon knew it. The Thuds made their attack and climbed away from Son Tay, when Scott suddenly spotted a MiG-17 directly in front of him. Scott went after the MiG; its pilot saw him and began to take evasive action. To make matters worse for Scott, a SAM was fired at his formation, and the Thuds had to dodge. Scott reacquired the MiG-17, passing at a right angle to him—a ninety-degree deflection shot with a gun, the hardest imaginable. Scott fired nonetheless, firing over 260 rounds in three seconds, and the bullets found their mark. Missing chunks of a wing, the MiG went into a spin. Scott called that he had fired on the MiG, using his personal callsign of Scotch One. Though Scott did not

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<sup>84</sup> Toperczer, *Air War* p. 17.

<sup>85</sup> Hanak, p. 44; Dethlefsen's account is described in Hobson, p. 91.

see the MiG crash, the top cover F-4s did, and “Chappie” James verified the kill as Scott’s.<sup>86</sup> The VPAF claimed a F-4C shot down on the same day over Hoa Lac, and there was a F-4C lost on 26 March in the area. However, USAF records claim the damage was from a SAM, of which there were many fired on 26 March. Moreover, the VPAF does not credit the kill to any one pilot, though the credit is given to a MiG-17. With this much ambiguity, it is probably safe to assume the F-4 was shot down by a SAM. In any case, Lieutenant Colonel Frederick Crow and Lieutenant Henry Fowler, the F-4’s crew, would be the dubious guests of the Hanoi Hilton until 1973.<sup>87</sup>

The climax to the mid-April F-105 versus MiG battles came on 19 April, almost a month later. On that day, the Americans attacked the NVA barracks at Xuan Mai, southwest of Hanoi. This drew a comparatively heavy response from the VPAF, with both operational fighter regiments contributing between eight and ten MiG-17s, which hit the first flight into the area—a group of four two-seat F-105F Wild Weasels, led by Major Leo Thorsness and his backseater, Captain Harold Johnson. As Thorsness’ first section attacked a SAM site, the other two F-105s turned to hold off the MiGs. Thorsness’ section pulled off the target after destroying it, and his wingman (Major Thomas Madison and his backseater, Major Thomas Sterling) radioed he had been hit—one of the MiG-17s had closed in unseen and fired. A few minutes later, the two men had to eject from their burning Thud. The other two F-105s in Thorsness’ flight had driven off the other MiGs, but not without taking some battle damage themselves, and had to head for home (in this case, Takhli RTAFB). Thorsness and Johnson remained in the area, alone, to mark the position of Madison and Sterling’s parachutes. Johnson saw one of the MiG-17s heading east, and they decided to go after it, as it could reverse its turn and attack the oncoming rescue forces. Thorsness made a series of slow turns to reduce his airspeed (his F-105 was “clean” with no ordnance, making it twice as fast as a MiG-17), Johnson keeping an eye on the SAM radars, which were attempting to lock on. Finally, Thorsness was close enough to shoot: his first burst missed, but the second tore into the MiG-17’s left wingroot. Thorsness pulled up to avoid the

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<sup>86</sup> Drendel, p. 21.

<sup>87</sup> Toperczer, Air War p. 17; Hobson, p. 95.

MiG, missing his opponent by less than fifty feet. The MiG spiraled into the ground, just as Johnson called out, "Leo, we've got MiGs on our ass!" Thorsness went low and opened his throttle, and the MiGs were left behind. Low on fuel, Thorsness reached a tanker at the Laotian border. Once he had topped off his Thud's fuel tanks, Thorsness headed back into North Vietnam to help coordinate the rescue effort.<sup>88</sup>

Meanwhile, the attack on Xuan Mai continued unabated, and the strike F-105Ds found themselves under attack by yet more MiG-17s (probably from the same formation that attacked the Wild Weasels). One of the flight leaders, Major Jack Hunt, fought three MiG-17s in succession. His first two attacks, with his sole Sidewinder and gunfire, missed, but the third time was the charm; the twenty millimeter cannon shells hit the MiG-17 just behind the canopy. The MiG went down, smoking, and was later confirmed by American intelligence sources as having crashed. About roughly the same time, one of Hunt's flight, Major Frederick Tolman, got off a snap shot at a hard-turning MiG-17. Tolman climbed and turned, as the MiG was turning behind him when he fired, but as he looked back, the MiG was in a gentle dive and eventually went into the ground; Tolman's shots had probably hit the pilot. Two of the third flight, callsign Panda, Captains William Eskew and Paul Seymour, fought off attacking MiG-17s with no result for either side. The strike force Thuds, having completed the mission, headed for home.

Yet the day was not over. As Thorsness briefed the two A-1 "Sandy" escorts for the rescue helicopter, he spotted at least seven MiG-17s heading towards them. He engaged them, trying to decoy them away from the A-1s, which were heavily loaded with ordnance. Thorsness damaged one MiG, but one of the others shot down the lead A-1, killing Major John Hamilton. The surviving A-1 called for help as four MiGs came after him. Luckily, Eskew's four F-105s were heading away from Xuan Mai and turned to assist. Eskew's flight zoomed through the MiG-17s at over the speed of sound, scattering them. Eskew turned to attack the lead MiG-17, which was withdrawing to the north, but missed with his Sidewinder. As he turned back into the fight, Eskew noticed that Panda Three was attacking a MiG-17 as it made a left turn. Behind Panda Three was a MiG-17, and behind this MiG-17 was Panda



Four, which in turn had a MiG closing in on him. Eskew attacked this MiG, only to find a final MiG-17 attacking him—and in turn being attacked by Seymour, Panda Two!

This confusing situation was broken up when Seymour drove off the MiG behind Eskew, leaving him free to concentrate on the MiG-17 in front. This MiG broke off, making a run for home, but Eskew closed and fired, hitting the MiG's spine. Like Thorsness, Eskew had to climb to avoid a collision, but as he did so, the MiG-17 exploded—Eskew had hit the fuel tank. The tough Thud survived the explosion. The other Thuds and MiGs disengaged without further hits by either side. One of the Panda F-105s was low on fuel, so Thorsness, who was exfiltrating to the south, sent the tanker waiting for him to refuel the other Thud. Thorsness and Johnson squeaked into Udorn RTAFB with dry tanks. Though Madison and Sterling had been captured, and Hamilton killed, the Thuds had shot down four MiG-17s; for their selfless actions on 19 April, Thorsness was awarded the Medal of Honor and Johnson the Air Force Cross.<sup>89</sup> The VPAF claimed two F-105s and two A-1s shot down, though only one of each was lost on the mission; no pilot is registered for the F-105 claim, though claim for the A-1 is split between Nguyen Van Tho, Nguyen Van Trung, and Doung Troung Tan.<sup>90</sup>

#### *A Long Week, 23-30 April 1967*

The VPAF, roughly about mid-March or early April, began to switch tactics slightly. Rather than use the MiG-21s and MiG-17s in separate engagements, it was decided to mix the formations, with the MiG-21s diving on American formations while the MiG-17s engaged from the flanks. Again, this emphasized the best of both designs: the MiG-21's superior ability in the vertical, and the MiG-17's superb maneuverability. It would also minimize the MiG-21s' exposure while they fired their missiles. American pilots also noticed that the MiG-17s had adopted the "Lufbery Circle" as a defensive tactic. Named, ironically enough, for the World War I American pilot who developed it, the Lufbery Circle,

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<sup>88</sup> Hanak, pp. 46-47; Matthew Waki, Rendezvous with the Rattlesnake, author's personal collection.

<sup>89</sup> Hanak, pp. 47-48; Hobson, p. 96.

also called the “wagon wheel,” consisted of MiGs turning in a tight circle. If an American attempted to penetrate the circle to attack one MiG, he would find himself under attack from the MiGs in the circle behind him, or a MiG could break the circle and cut across it to attack, continuing to have the support of his circling wingmen. It was an effective tactic, though if the Americans could get their Sparrows to work, it would be less so. The MiG-21’s tactics were reminiscent of those used by the “Flying Tigers” over China to avoid the more maneuverable Japanese fighters.

The Americans too altered their tactics, with much greater consequences for the Vietnamese. In mid-April, McNamara and Johnson finally authorized the USAF and the US Navy to attack the MiG bases, possibly because of the increasing tempo of MiG attacks in Pak Six. These missions were allowed to hit only Kep, Kien An, and the partially finished field at Hoa Lac, to crater the runways and destroy the earthen revetments that sheltered the MiGs. The VPAF would now have to come up and fight whether they wanted to or not, or have their fighters destroyed where they sat. It was the same logic, heretofore missing in the American war effort, that had destroyed the German Luftwaffe in World War II.<sup>91</sup> The stage was set for the most intense week of air combat since the war had begun.

The first attack came on 23 April against Kien An, and would destroy possibly nine MiGs on the ground—and an additional one in the air. As a strike force of F-4Cs of the 366<sup>th</sup> TFW approached the target, two MiG-21s attacked from the left side. Three F-4s of Chicago flight jettisoned their bombs and turned to engage. These MiG-21s broke off their attack, but another pair was spotted to the right, and the F-4s reversed their turn to engage these. Again the MiGs broke off, going high. Chicago Lead and Chicago Three—the latter crewed by Major Robert Anderson and Captain Fred Kjer—fired Sparrows. One MiG evaded the former’s missile by flying into cirrus clouds, but the second was struck by Anderson’s Sparrow. The MiG-21 burst into flame and dived into the ground, no parachute being seen. Anderson later said, “You can’t afford to be complacent up there. You have to keep looking

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<sup>90</sup> Toperczer, Air War, p. 17, MiG-17 and MiG-19 Units, p. 89.

<sup>91</sup> Toperczer, Air War, pp. 17-18; Hanak, pp. 45, 48.

around. [The VPAF pilot] thought he was out of the fight...he made no evasive maneuvers. I don't think he ever saw me or knew what hit him.”<sup>92</sup>

On the next day, both the USAF and the US Navy struck airfields, the USAF hitting Hoa Lac while the Navy attacked Kep. Seven MiG-17s of the 923<sup>rd</sup> Fighter Regiment responded, with one flight (consisting of Vo Van Man, Nguyen Ba Dich, Nguyen Van Bay, and Nguyen The Hon) heading southwest to head off the USAF F-105s and F-4s, and the other (Mai Duc Toai, Luu Huy Chao, and Hoang Van Ky) remained near Kep to intercept the Navy's A-6 Intruders and F-4s. The first flight engaged the USAF fighters and claimed two Phantoms, with honors split among the four pilots. One F-4C was lost on the raid; USAF records report the loss to antiaircraft fire, which is likely since the F-4 disintegrated when it was hit, killing the crew (Major Herman Knapp and Lieutenant Charles Austin). No other members of Knapp's flight reported seeing MiGs, so at best this can be considered a possible kill by the first flight of the MiG-17s.

The Navy strike on Kep ran into heavy opposition from all aspects of the North Vietnamese defense net—flak, SAMs, and MiGs. As the strike force approached the field, several of the MiGCAP F-4s, drawn from VF-114 onboard USS *Kitty Hawk*, were hit by antiaircraft fire, forcing some to return home. Two aircraft that were able to remain were F-4Bs crewed by Lieutenant Charles Southwick and Ensign James Laing, and Lieutenant Dennis Wisely and Lieutenant (jg) Gareth Anderson. Southwick and Laing had heard their aircraft get hit by flak, but since nothing seemed wrong with their F-4, continued on with the mission, as the force's A-4s and A-6s dropped their bombs on Kep. As the force turned for the Gulf of Tonkin, Navy radars in the Gulf picked up MiG-17s headed in their direction—Mai Duc Toai and his two companions.

Southwick spotted the MiG formation and turned to intercept. The MiGs went into a Lufbery Circle, so Southwick climbed and dove into the formation at high speed; he fired a single Sidewinder and hit a MiG-17 in the right wing. As the MiG fluttered to the ground, burning, Southwick climbed away, the next MiG in the formation in pursuit. The latter was seen by Wisely, who ordered Southwick to break.

The MiG's fire missed, but Wisely's Sidewinder did not. The F-4s joined up and headed for the coast, when Laing noticed that he and Southwick had a low fuel light. The flak hit had severed a fuel line. Five miles into the Gulf, the F-4 ran out of fuel, and Southwick and Laing had to eject, to be picked up by a Navy helicopter. Another F-4, from VF-213 (again off the *Kitty Hawk*) ran into some trouble shortly before or after their comrades' MiG battle; it was engaged by three MiG-17s, but after some intense maneuvering, the F-4 was able to pull away and return home without damage.

The 24 April fighting near Kep ended with the teams of Southwick/Laing and Wisely/Anderson each claiming a MiG-17, and the VPAF claiming two F-4Bs. The latter was almost certainly Southwick's aircraft and the one from VF-213, but as Southwick's aircraft was hit well before the MiGs arrived and the VF-213 F-4 escaped, neither of the VPAF kills can be substantiated. Wisely had downed one of the An-2s on 20 December 1966, making him the first Navy aviator to "officially" have two kills (Harold Marr's second kill having not yet been confirmed by intelligence sources). The two MiGs shot down were probably of Mai Duc Toai's flight, but both apparently ejected, since they would be flying again in 24 hours.<sup>93</sup>

Kep and Kien An had been heavily damaged by the American strikes, but the North Vietnamese had prepared for this eventuality, having stored reinforced concrete plates and tons of dirt for runway repairs, with plenty of local civilians available to work. Since the Americans could be expected to strike more targets on the next day, four MiG-17s were flown to Kien An to prepare an ambush. It worked. The four MiGs, flown by Nguyen Van Bay, Nguyen The Hon, Ha Bon, and Nguyen Ba Dich, attacked a formation of A-4Cs of VA-76 as they attacked an ammunition depot near Haiphong. Lieutenant Charles Stackhouse, maneuvering to shoot a MiG-17 off his wingman's tail, found himself under fire from another. As his A-4's engine came apart, he was forced to eject and become a "guest" of the Hanoi Hilton for the rest of the war. The four MiGs also claimed an A-4E and a F-8. While postwar records confirm the loss of Stackhouse's A-4C to the MiGs, no F-8s were lost that day; two A-

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<sup>92</sup> Hanak, pp. 48-49.

<sup>93</sup> Toperczer, *Air War*, p. 19; Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1965-70*, pp. 48-49;

4Es were, but both pilots reported being hit by SAMs. The first (flown by Lieutenant Commander F.J. Almberg) was hit roughly about the same time as Stackhouse, on the opposite side of Haiphong, and was attacking a SAM site at the time, so it is almost certain he was not hit by MiGs. The second A-4E (flown by Lieutenant (jg) A.R. Crebo) is less certain, as he was damaged by a SAM near miss. No MiGs were reported in the area of Crebo, and as he was able to limp almost as far as his carrier before he had to eject, it is unlikely he was attacked either—his A-4 was badly damaged and easy prey for a MiG to finish off, yet none did. Crebo's A-4 was also lost in the afternoon strike, and the evidence in VPAF records does not mention the four MiGs at Kien An going out on a second mission.<sup>94</sup> In any case, the confirmed A-4 kill was evenly divided between all four of the Kien An ambushers, so a quarter kill should be awarded to each. A fourth kill of the day, a F-105D, was claimed by Mai Duc Toai, Le Hai, Luu Huy Chao, and Hoang Van Ky near Gia Lam. The USAF did indeed lose a F-105 that day near Gia Lam, with the loss of its pilot (Lieutenant Robert Weskamp), but it was observed by the other Thud pilots in the formation as either being hit by an 85 millimeter antiaircraft barrage, or when the two 3000-pound bombs it carried tore off the wing stations and portions of the wing with it. Again, no MiGs were reported in the area, so this claim must be discounted as well.<sup>95</sup>

The next day saw an American raid on a thermal powerplant north of Hanoi. Once more, the VPAF was out in force, and the F-4 MiGCAP of the 366<sup>th</sup> TFW ran into ten MiG-21s—the first time they had been seen in large numbers since Operation Bolo. One of the F-4Cs, flown by Major Rolland Moore and Lieutenant James Sears, climbed and attacked three of the MiG-21s orbiting over the strike force, possibly looking for an opening to attack the F-105s. Sears told Moore, "We've got him; fire!" as the F-4's radar locked on. Moore fired a Sparrow, and the targeted MiG made a hard break to avoid. It was too late; the Sparrow hit and the MiG crashed on the foothills of Thud Ridge. The other MiGs

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Hobson, p. 96.

<sup>94</sup> Toperczer, *MiG-17 and MiG-19 Units*, p. 44.

<sup>95</sup> Toperczer, *Air War*, pp. 18-19; Hobson, p. 97.

attempted to lure the F-4s over Noi Bai, where antiaircraft fire and SAM sites awaited. The F-4s, after being bounced around by flak, avoided the airfield, and no further combat occurred.<sup>96</sup>

27 April saw no flights north, but 28 April was once again a “MiG day.” This time the target was the Han Phong causeway over the Song Ma river, west of Hanoi. As the first flight of F-105s came off the target, the flight leader, Major Harry Higgins, noticed a MiG-17 to his right. He got behind and fired his Sidewinder, but the MiG evaded the missile and disappeared. He and his wingman then engaged two MiG-17s head on; both sides exchanged cannon fire and both missed. Higgins turned to pursue, but the MiGs were already out of range. He saw a third MiG-17, possibly trying to catch up to the other two. As Higgins closed in, the MiG pilot tried to evade, but was a fraction too slow; Higgins’ 20mm gatling cannon tore apart the MiG’s left wing and it went down. About the same time, two more MiG-17s attacked the third flight as it dropped its bombs. Lieutenant Colonel Arthur Dennis got behind one that was attacking his wingman. His Sidewinder failed to guide, but his cannon fire was accurate. The MiG burst into flame and crashed. The 355<sup>th</sup> TFW added two more to the five kills the F-105s had chalked up during the month.<sup>97</sup> . It did not come without a price, however: on the afternoon strike, the Iron Hand flight was clearing Pak Six on the way home when they were attacked by MiG-21s. Two of the flight were raked by cannon fire; Captain Franklin Caras was killed, though his wingman survived. This kill is not recorded in VPAF records, and may have been scored by a non-Vietnamese pilot.<sup>98</sup>

On 30 April, the USAF returned to the thermal powerplant north of Hanoi. Ahead of the strike force, as usual, was the Wild Weasel force, callsign Carbine. It consisted of three two-seat F-105Fs and a single one-man F-105D. As Carbine Flight approached Thud Ridge, one of the pilots noticed an explosion to their rear, which he initially thought was a SAM explosion. It was actually Carbine Four, Captain Joseph Abbott. A few seconds later, Carbine Three was hit, which forced Leo Thorsness and Harold Johnson—the heroes of the 19 April mission—to bail out. Two MiG-21s of the 921<sup>st</sup> Fighter

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<sup>96</sup> Hanak, p. 49.

<sup>97</sup> Hanak, p. 50.

Regiment, flown by Nguyen Ngoc Do and Nguyen Van Coc, had struck without warning or being seen until it was too late—Carbine Lead (Major Benjamin Fuller and Captain Norm Frith) did not realize Abbott had been shot down until they did a flight check in soon after Thorsness and Johnson had to eject. The two surviving Thuds of Carbine headed east to Laos to refuel and return, while Tomahawk Flight, four F-105Ds that aborted the strike, orbited over the three downed pilots.<sup>99</sup>

Carbine refueled and headed back into North Vietnam, just behind the A-1E “Sandy” escorts, which had arrived over the downed airmen. The HC-130 that coordinated the rescue effort, orbiting over Laos with the callsign of Crown, relayed a message that MiG-21s had been sighted heading towards the Americans, but the call was either ignored (it was thought that the MiGs might actually be the returning Carbine F-105Fs), or lost in the general chaos that the rescue effort was becoming. With three airmen down, the “beepers” attached to their survival gear automatically went off, filling the air with high-pitched warbles; at the same time, Tomahawk Lead (Major Edward Dodson) was trying to help the A-1s find the pilots on the ground. Carbine arrived, and Tomahawk, low on fuel, made one more pass over the downed pilots. As they did, Tomahawk Four (Captain Joseph Abbott—no relation to Robert Abbott, on the ground below him) yelled, “Break right, Tomahawk! MiGs behind you!” Before the call had time to register, Tomahawk Three, Major Al Lenski, felt his F-105 take a tremendous hit. He managed to recover before the aircraft spun into the ground, and as he leveled out and looked around, Lenski found himself sandwiched between two MiG-21s, flown by Le Trong Huyen and Vu Ngoc Dinh of the 921<sup>st</sup>. Lenski dived for the ground, hoping to lose the MiGs in low clouds, jettisoning his external fuel tanks. Lenski reached the clouds, remained there for a moment, then pulled above them to see what was going on. He saw a ball of flame and a parachute; Joe Abbott had pursued the MiG-21s in an effort to get them away from Lenski, and succeeded a little too well, for Vu Ngoc Dinh had turned and shot him down. Lenski managed to wedge a call in acknowledging he had been hit and was heading east into Laos, and that Tomahawk Four was down. At this point, Thorsness radioed, “They’re

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<sup>98</sup> Hobson, p. 97.

<sup>99</sup> Hobson, p. 98.

coming up the hill after us—get me out of here!” It was too late for Thorsness, Johnson, and the two Abbotts. Despite the best efforts of the rescue teams and the nearly three flights of F-105s overhead (including the remnants of Carbine and Tomahawk flights, and the newly arrived Waco flight, led by Colonel Jack Broughton), all four were captured and would spend the rest of the war in prison. Lenski, despite being badly damaged by Huyen’s K-13 missile, managed to find a tanker, refuel with nearly dry fuel tanks, and land safely in Thailand.<sup>100</sup>

It was the most successful mission for the VPAF to date. Four F-105s were claimed, but since Lenski was able to nurse his crippled Thud home, Huyen’s claim has to be disallowed. (One can certainly understand why this claim was made, however—Lenski’s F-105 was so badly damaged that even he thought he would have to bail out.) Nonetheless, three F-105s shot down in an hour, two of them within ten seconds of each other, was quite an accomplishment.<sup>101</sup> It stunned the USAF community in Southeast Asia, and was only partially mitigated by the downing of a MiG-17 over the powerplant. Captain Thomas Lesan, having just dropped his bombs, was climbing away from the target when he spotted two MiG-17s—his flight had been attacked just before the bomb run by three MiG-17s. Using the speed built up in the dive, Lesan nearly ran over the last MiG in line, shooting him down with a burst of gunfire.<sup>102</sup>

#### *The Apex of Rolling Thunder: May 1967*

The events of 30 April forced an immediate change of tactics by Seventh Air Force. For most of spring 1967, most USAF F-4s had been used as strike aircraft, and less so for escort and MiGCAP roles. With the MiGs once more active and attacking in strength not seen since December 1966, both Seventh Air Force and local wing commanders began switching tactics once more. F-4s would go back

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<sup>100</sup> Al Lenski, “The Longest Mission: The View from Tomahawk Three.” Red River Valley Fighter Pilots Association Yearbook. ed. Pamela Wood. (Paducah, KY: Turner Publishing, 1993).

Thorsness had already been nominated for the Medal of Honor, but did not receive it until he returned from captivity in 1973. The fact that he had been awarded it was kept a secret, lest Thorsness receive even more abuse than he did. Thorsness later became a Senator.

<sup>101</sup> Toperczer, Air War, p. 19.

<sup>102</sup> Hanak, pp. 50-51.



to their roles as fighters. To better protect the F-105s, a flight of F-4s was placed close to the F-105 strike force, usually just behind the Iron Hand and Weasel flights, which had come under such attack. Additionally, a trail force of F-4s was placed behind the strike force, to prevent the rearward slashing attacks that the VPAF preferred. To address the F-4C's lack of an internal gun, some F-4s (mainly those of the 366<sup>th</sup> TFW, appropriately nicknamed the "Gunfighters"), began carrying SUU-16 20mm gatling gun pods, slung beneath the belly of the F-4. These were not terribly accurate and had a tendency to indiscriminately throw cannon shells around the sky, but were better than nothing.<sup>103</sup>

It paid immediate dividends. On 1 May, F-4Cs of the 366<sup>th</sup> TFW were supporting a renewed rescue effort for the pilots shot down on 30 April, in the vain hope that some might have escaped the Vietnamese net. Leading the MiGCAP flight was Major Robert Dilger and his backseater, Lieutenant Mack Thies. Thies detected three MiG-17s approaching them head-on. Dilger led his flight up and over the MiGs, diving in behind the formation. Dilger fired a Sparrow, but his target broke into the missile, which went wide. Dilger stayed with the MiG, firing three Sidewinders; all three missed as the VPAF pilot dodged them all. However, this skilled pilot's luck ran out with the fourth Sidewinder: so intent was he on avoiding the missile that he failed to notice his altitude. The MiG-17's wing struck the ground and the aircraft cartwheeled across the landscape. Dilger and Thies were credited with a maneuvering kill.<sup>104</sup>

The US Navy also scored on May Day, with one of the strangest air victories of the war. The USS *Bon Homme Richard* struck targets in the Kep area, and inevitably ran into the MiG-17s of the 923<sup>rd</sup> Fighter Regiment. Lieutenant Commander Ted Swartz, who found himself in the landing pattern over Kep airbase, shot down a MiG-17 by salvoing a pod of Zuni rockets at it. The Zunis were large four-inch rockets designed for ground attack use, but they worked equally as well this time against an aerial target. For VA-76, Swartz's parent squadron, it was a measure of revenge—their commander, Charles

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<sup>103</sup> Hanak, p. 55. The US Navy also experimented with fitting Mark 4 gunpods with twin 20mm cannon, but these proved so unreliable and inaccurate that they were removed after only a few missions. Throughout the war, the Navy relied strictly on missiles with their Phantoms.

<sup>104</sup> Hanak, p. 51.

Stackhouse, had been shot down some weeks before by MiG-17s. The “Bonny Dick” had another reason to celebrate May Day, as one of the carrier’s F-8s, piloted by Commander Marshall Wright, had also downed a MiG-17 near Kep with a Sidewinder. Wright was the commanding officer of VF-211, the “Checkmates” that had fought the battles near Kep the year before. They would be heard from more during the month.<sup>105</sup>

Someone else from the near past was to be heard from as well. On 4 May, a strike force of F-105s attacked targets around Hanoi; leading the trail flight of F-4Cs (callsign Flamingo) was Colonel Robin Olds, this day flying with Lieutenant William Lafever as his backseater. As they approached Noi Bai, two MiG-21s on patrol attacked the F-105s from behind. Olds called a warning and turned into the MiGs, engaging one of them. Olds fired two Sparrows, neither of which guided, so he closed in to use his Sidewinders. The MiG-21 managed to evade two of them before the third struck. Badly damaged, the VPAF pilot ran for Noi Bai, with Olds still behind him, firing his last missile, which lost the MiG in the ground clutter. It was too late for the MiG: it burst into flame. Olds, with the antiaircraft batteries arrayed around the airfield beginning to fire on him, finally broke off pursuit to rejoin the F-105s. Flamingo Three, behind Olds, saw the hapless MiG crash just short of the runway, on a friendly gun battery.

Seeing a lot of AAA over the strike force’s target but no Thuds, Olds deduced that the F-105s were already egressing the target area. Breaking to avoid the flak, Olds led his flight directly over Hanoi at high speed. “We weren’t supposed to do that, but I couldn’t help it,” Olds said later. As they headed out of North Vietnam, they passed over the newly-repaired airfield at Hoa Loc, with a number of MiG-17s in the landing pattern. Olds was out of missiles, but he dived into the pattern in any case, maneuvering his flight so that the other pilots could get shots. So close were the F-4s to the MiG-17s that the ground batteries held their fire so that they would not shoot down their own aircraft. Though no kills resulted from the wild battle, Olds later reported:

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<sup>105</sup> Tillman, p. 141.

“And there I was, making passes at MIGs...with no missiles...no way of firing. I would just press into their tails as close as I could, sometimes to within twenty feet or so, before pulling up. It kind of amused me...after all, they had no way of knowing that I couldn't shoot. I'll bet there were three or four MiG pilots changing their laundry after they landed that day!”

Low on fuel, Olds ordered his flight home, where they returned without further incident. It was Olds' second kill of the war.<sup>106</sup>

The MiGs struck back heavily on 12 May, when the Americans bombed an army barracks at Ha Dong. Evading heavy AAA fire and SAMs over the target, the F-4C of Colonel Norman Gaddis and Lieutenant James Jefferson was hit and began to straggle behind the rest of the flight. As such, it was an easy target for a flight of four MiG-17s of the 923<sup>rd</sup> Fighter Regiment, including Cao Thanh Tinh, Le Hai, Ngo Duc Mai, and Hoang Van Ky. Ngo Duc Mai closed in and shot down the F-4. Jefferson was killed either in the ejection or soon after landing, but Gaddis survived, the highest-ranking USAF pilot shot down so far. Not long after Gaddis and Jefferson were shot down, a F-105 piloted by Captain Earl Grenzebach was lost attacking a storage depot at Nguyen Khe, just north of Hanoi. Grenzebach managed to nurse his aircraft northwest almost to Yen Bai before ejecting, though it appears he was killed in the ejection. Grenzebach reported he was hit by ground fire, but Duong Trung Tan and Nguyen Van Tho reported shooting down a F-105 in the same area at roughly the same time, so it is reasonable that the F-105 was Grenzebach's. For the day, the VPAF claimed three F-4Cs and two F-105s, but only Gaddis' F-4 and Grenzebach's F-105 have been confirmed by postwar records or can be presumed to be accurate. There was a second F-105 shot down on 12 May, a two-seat F-105F, but it was lost in Pak Two north of Dong Hoi, too far south for the MiGs to operate at the time, and the VPAF pilots claimed the F-105 near Haiphong. The VPAF gave credit to every man in the flight for the F-4. For the purposes of this thesis, the F-105 kill is divided evenly between Van Ky and Trung Tan.<sup>107</sup> The MiGs took losses of their own on 12 May as well—in probably the same action in which Grenzebach's Thud was mortally wounded, one MiG got in front of Captain Jacques Suzanne, leading

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<sup>106</sup> Drendel, pp. 12-13.

<sup>107</sup> Toperczer, *Air War*, p. 19; Hobson, pp. 99-100.

one of the strike force elements. Suzanne opened fire, and the MiG went down streaming smoke, and was seen to crash by Suzanne's wingman.<sup>108</sup>

The next day, 13 May, was to see the most intense battles, and the most one-sided, since Operation Bolo. The target for the Americans was the Yen Vien barracks and rail yard, northwest of Hanoi and virtually next door to Noi Bai. Two flights of F-105s were tasked to strike the rail yard and a third on the barracks, all being covered by 8<sup>th</sup> TFW F-4Cs. As they came off the rail yard, the first flight of F-105s spotted three MiG-17s high and to the left. With no bombs left onboard, the Thuds were ready to fight, and the flight leader, Lieutenant Colonel Philip Gast, led his group in to engage. The MiG-17s turned and met the Thuds head on. Gast had fired his one Sidewinder earlier, but as the F-105s and MiGs passed each other on a collision course, he opened fire with the Thud's gatling cannon. One MiG erupted with fire and smoke and went down. The third man in Gast's flight, Captain Charles Couch, fired on a second MiG-17, which broke hard to avoid both Couch's gunfire and his F-105. The Vietnamese pilot made the turn too tightly and went into a flat spin. This pilot also apparently ejected, as Seventh Air Force, after review, confirmed Couch's kill.

The second flight of F-105s, led by Major Robert Rilling, were leaving Yen Vien when they also ran into MiG-17s, possibly after Gast's flight, as they were directly in front of Rilling. He fired his Sidewinder, which struck the MiG-17 beneath the tail. As it began to shed pieces of fuselage, the MiG went into a hard left turn, Rilling following to bring his gun to bear. The MiG then rolled right and hit the ground. Behind Rilling, the third aircraft in the flight, flown by Major Carl Osbourne, also hit a MiG-17 with a Sidewinder. On fire, the MiG turned for home. Osbourne followed, but then a third MiG-17 got behind him in the turn. Luckily for Osbourne and his wingman, Captain Paul Seymour was able to sufficiently damage the MiG enough with gunfire to force it away. Seymour had gotten separated from Gast's flight in the earlier battle. Osbourne's stricken MiG presumably crashed before it could reach Noi Bai—as in Couch's case, it was later confirmed by intelligence sources.

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<sup>108</sup> Hanak, p. 53.

Though the Thuds were more than holding more their own, the F-4 MiGCAP arrived to lend their weight to the battle. As two MiG-17s attacked either Gast's or Rilling's flight (probably the former), the F-105s went into a split-S in an attempt to disengage. The MiGs climbed, preparatory to diving down and catching the F-105s as they pulled out of the split-S. At the apex of their climb, one MiG was hit by a Sidewinder and exploded, having been caught by the F-4 flown by Major William Kirk and Lieutenant Stephen Wayne. Kirk's wingman F-4, flown by Lieutenant Colonel Fred Haeffner and Lieutenant Michael Bever, attacked the second MiG. Haeffner intended to fire two Sparrows but accidentally pressed the trigger thrice. The first Sparrow, predictably, failed to guide, but the second struck the MiG-17 just behind the canopy, where the fuel tanks were. The MiG literally disintegrated in an explosion; the third Sparrow apparently tracked on the explosion and also detonated in the fireball.

The last victory of 13 May was scored by Major Maurice Seaver, Jr., who had been in the third flight attacking the Yen Vien barracks. Pulling up from the bomb run, he spotted a single MiG-17 in a shallow dive, off his left side. Seaver tracked the MiG and opened fire; the MiG went down with one wing completely afire. Like most air-to-air combats, from the moment Seaver had sighted the MiG to when it went down spanned less than ninety seconds. It had been an incredible day for the USAF, especially for the F-105 pilots, who accounted for five of the seven MiG kills; the month was not even half over yet.<sup>109</sup>

14 May was to prove another successful day for the USAF—this time for the gunpod-armed 366<sup>th</sup> TFW. Using the new tactics of wedging F-4s in with the F-105s and the trailing F-4 flight continued to play dividends. A strike on the Ha Dong barracks near Hanoi once more brought the VPAF out in force. As the first MiGCAP flight reached the target area, flight leader Major James Hargrove Jr., flying with Lieutenant Stephen DeMuth, spotted two F-105s leaving Ha Dong at high speed, with four MiG-17s behind them. The F-4s charged into the battle, while another three MiG-17s arrived as reinforcements about the same time; the result was a “furball,” as pilots refer to these types of

dogfights, of twisting and turning aircraft. Hargrove fired most of his Sidewinders and Sparrows at three of the MiGs, and missed all three times. Finally, he switched to the underslung SUU-16, caught a MiG-17 in a shallow dive, and fired, closing to within 300 feet. The MiG-17 exploded, and Hargrove dodged flying debris. Looking back, he saw the MiG falling to the ground in two pieces. A few minutes later, another F-4 in Hargrove's flight, crewed by Captain James Craig Jr. and his backseater Lieutenant James Talley, scored another kill, also with the SUU-16. Having similarly missed with two Sparrow shots, Craig trailed a MiG-17 through a series of turns and scored hits in the upper fuselage and wing roots. The MiG-17 burst into flames and dove into a mountain.

The second flight had arrived in the area, and this flight's leader, Major Samuel Bakke and Captain Robert Lambert, dove on a formation of MiG-17s attempting to form a Lufbery Circle. His Sidewinders missed, so he climbed and dove for another attempt, striking at the circle from the outside. As he did so, the MiG hit by Craig passed by underneath, completely on fire. Bakke closed in on his target and abruptly realized he was too close for a Sparrow shot. Throttling back, he let the MiG-17 forge ahead a little, then fired two Sparrows. The first missed; the second did not, hitting the MiG-17 just behind the right wing. It stalled and went down, burning. The F-4s, low on fuel and with more MiGs on the way, left the area for their home base at Da Nang. The engagement had taken ten minutes, one of the longest of the war, and had shown the usefulness of having a gun, integral or pódoded. It had also shown the continuing problems with the missiles—of approximately twelve missiles fired, only one had hit something.<sup>110</sup>

19 May was Ho Chi Minh's 77<sup>th</sup> birthday, so American units could count on a hot reception. The US Navy was the unfortunate recipient, launching two strikes near Hanoi, a first for the Navy. The first attack, originating from USS *Kitty Hawk*, went after the Van Dien SAM storage and support facility just south of Hanoi. The SAMs were particularly deadly this day, claiming two F-4Bs and an A-6 near the target. Two MiG-17s of the 923<sup>rd</sup> Fighter Regiment, flown by Phan Thanh Tai and Nguyen Huu

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<sup>109</sup> Hanak, pp. 53-55.

<sup>110</sup> Hanak, pp. 55-57. In a remarkable coincidence, Samuel Bakke's son Daniel would shoot down an Iraqi

Diet, also claimed the two F-4s. The first, flown by Commander Richard Rich and Lieutenant Commander Robert Stark, has to be discredited as it was seen to be hit by SA-2s—twice—and was lost near the target, fifteen miles from where Thanh Tai claimed to shoot down the F-4. (Rich was killed, while Stark lived to become a POW.) The second is more murky, as the crew (Lieutenants (jg) Joseph Plumb and Gareth Anderson) reported being hit by a SAM and bailed out near Xuan Mai, which was exactly where Huu Diet claimed to shoot down his F-4 kill. Usually the MiGs shied away from where SAM sites were firing barrages of missiles, which was what was happening on 19 May, but it was not unknown. Therefore, Huu Diet may have indeed scored a kill.<sup>111</sup>

On the other side of Hanoi, the Navy was also attacking the Hanoi thermal powerplant, in one of the first precision-guided munitions strikes in history. Four A-4s carried AGM-62 Walleye PGMs, and were escorted by no less than 12 F-8s, the latter made up of aircraft from VF-24 and, once more, VF-211. Antiaircraft fire was particularly heavy, as were the SAMs. As the A-4s lined up to drop their Walleyes—which were guided to the target by the pilot steering a television-linked joystick—a MiG-17 suddenly flew through the formation of the escorting F-8s. Lieutenant (jg) Joseph Shea said calmly, “There’s a MiG among us. No one get excited.” Lieutenant Philip Wood chased off the MiG and rejoined the formation; as he did so, the F-8s ran into heavy flak and SAMs, downing one F-8 of VF-211, and the MiGs returned when the barrage had ended. One shot up Wood’s Crusader, but overshot; Wood dispatched it with a Sidewinder.

VF-24’s F-8s attacked the guns around the powerplant while the A-4 pilots steered their Walleyes towards the target. With the attack complete, the F-8s disengaged and headed northwest, taking a circuitous route around Hanoi rather than making the direct run back to the Gulf. As they did so, another MiG-17 flew over the formation and then directly in front of it. Why the pilot did this is a mystery, as it made him a perfect target—either he did not see the F-8s or was acting as bait for another formation of MiGs to strike the F-8s from behind. Lieutenant Commander Robert Lee attacked and

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helicopter 24 years later during Operation Desert Storm.

<sup>111</sup> Toperczer, *Air War*, p. 19; Hobson, p. 101.

fired a Sidewinder. At first, he thought it would miss as it sailed past the MiG's tail, but then the Sidewinder reversed its turn and struck the MiG just ahead of the tail. The MiG-17 broke in two, leaving the tail to rotate slowly in the air as the front end dove into the ground. As Lee rejoined the formation, he saw another MiG-17, spinning out of control before it cartwheeled into a rice paddy.<sup>112</sup> The escorting F-8s of VF-211 had scored. Commander Paul Speer and Lieutenant Shea, of the "no one get excited" quote, had shot down two MiG-17s with Sidewinders; the latter had "herded" the MiG-17 using cannon fire into good parameters for a missile shot.<sup>113</sup> The F-8s returned to the *Bon Homme Richard* with an unprecedented four kills in a single day, albeit having lost two of their own to ground fire. The Navy as a whole lost seven aircraft on 19 May, and though the 923<sup>rd</sup> Fighter Regiment lost four of their MiG-17s, they received a new regimental banner from Ho Chi Minh himself for their efforts.<sup>114</sup>

The next day was the climax of the May air battles, as the USAF struck the Kinh No vehicle repair center just north of Hanoi, and the Bac Le rail yard near Kep. The first strike was covered by the "Gunfighters" of the 366<sup>th</sup> TFW, the second by the "Wolfpack" of the 8<sup>th</sup> TFW, personally led once more by Robin Olds.

As the strike force F-105s came off the target, one of the F-4 crews spotted two MiG-21s heading under the F-105s, readying for an attack. The MiG pilots spotted the F-4s about the same time and disengaged, heading for the safety of China. Lieutenant Colonel Robert Titus and Lieutenant Milan Zimer, in the third F-4 of the flight, went after one of the MiGs, while the flight leader, Major Robert Janca and Lieutenant William Roberts, Jr., took on the other. The MiG-21 Janca pursued climbed away as the American dived on him; Janca, thinking ahead, continued the dive for an extra second and then pulled up hard. The MiG-21 was now the only heat source in a clear sky, and Janca's Sidewinder

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<sup>112</sup> Tillman, pp. 142-145.

<sup>113</sup> Drendel, pp. 72-73. The "I saw yours; did you see mine" quote mentioned earlier was radioed by Speer to Shea. Tillman, p. 144.

<sup>114</sup> Toperczer, *Air War*, p. 19. It is worth mentioning that the Walleyes missed the powerplant, the A-4s having released too low. However, two days later, another Walleye attack was successful.



shot tracked perfectly. The MiG-21 lost a portion of its tail in the explosion, and went into a death spiral that terminated on Thud Ridge.<sup>115</sup>

Titus and Zimer were having a more difficult time, as the MiG-21 they pursued was able to break the F-4's radar lock. Zimer reacquired the MiG, but as Titus was preparing to pull the trigger, his wingman yelled at him to break, apparently believing the MiG was turning to attack. No sane pilot ever questions a break, and Titus immediately made a hard left turn. The MiG-21 reached China safely, and Titus flew back towards Thud Ridge to rejoin the F-105s. As they flew over the ridge, Titus spotted a third MiG-21 catching up to the formation. Well over the speed of sound, Titus made a hard turn, locked on, and fired a Sparrow. The missile flew off to parts unknown. Zimer shouted at his pilot to fire again, and this time the Sparrow guided true, hitting at the left wing root. The wing blew off the plane, and the pilot ejected.<sup>116</sup>

The second raid also ran into heavy opposition, with between twelve and fourteen MiG-17s hitting the formation from both sides. The eight F-4s engaged, resulting in what Olds called "the most confused, vicious dogfight I have ever been in."<sup>117</sup> The first kill was made by Major John Pardo and his backseater Lieutenant Stephen Wayne. As four MiG-17s turned in behind the F-105s going for the target, Olds fired off a Sparrow that did not guide, and ordered Pardo to attack. The latter's first Sparrow shot also missed, but a Sidewinder connected. Pardo broke away as more MiGs arrived.<sup>118</sup>

Olds also broke into the new arrivals, and simultaneously a flight of F-105s climbed away from Bac Le. Somehow, the MiGs, the F-4s, and the F-105s avoided a massive midair collision, and Olds continued the hard turn to get in behind the MiGs, now below him. He glanced behind to check his

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<sup>115</sup> Hanak, pp. 57-58.

<sup>116</sup> Drendel, pp. 15-16.

<sup>117</sup> Hanak, p. 59.

<sup>118</sup> Hanak, pp. 58-59. John Pardo was already something of a legend in Southeast Asia: on 10 March 1967, his wingman crew, Earl Aman and Robert Houghton, had been severely damaged by flak near Hanoi, their engines flaming out. Rather than risk the two being captured, Pardo (whose F-4 had also been damaged) told Aman to lower his F-4's arrestor hook. Placing the hook against his canopy windscreen, Pardo used the lift produced by his own Phantom's thrust to "push" Aman out of North Vietnam. In the end, neither were able to reach a tanker and all four men had to bail out. "Pardo's Push" would have probably earned Pardo a Medal of Honor in another war, but instead he received a stern reprimand from Seventh Air Force. Twenty years later, he and

wingman's position, only to see the F-4 pitching upwards, on fire—another group of MiG-17s had fallen in behind Olds' flight. The crew of the doomed F-4, Major Jack van Loan and Lieutenant Edward Milligan, ejected and were later captured. The VPAF pilot that had shot down Olds' wingman now turned his attention to Olds himself. With shells "whizzing past my canopy," Olds went into a split-S and lost his attacker. The MiG-17s, with the F-105s departing the area at high speed, went into a defensive circle close to Kep airfield, well-covered by the field's antiaircraft guns. The Wolfpack F-4s tried to break into the circle, but each time they did, either they would be bracketed by intense flak or a MiG-17 would come across the circle and attack, forcing the F-4 to break off. Olds noticed a single MiG-17 very low, flying a figure-eight pattern, probably warning when the F-4s were positioning to attack—not a particularly difficult task, as the heavy smoke laid by the F-4's engines made them easy to see. Finally, Olds managed to shoot down one of the circling MiG-17s with a Sparrow, and was nearly shot down himself by the other MiGs. With fuel low, Olds ordered his F-4s to break off and head for home. Olds made sure that all his pilots acknowledged the call, then left the area last. As the Phantoms flew towards the Gulf, Olds checked his fuel, then with his backseater (Lieutenant Steven Croker), and turned back, going after the lone MiG-17. At extremely low altitude (Olds estimated ten feet above the ground), he was back in the combat zone in seconds. The MiG pilot saw him coming and fled for Kep, trying to lose Olds in the hilly terrain south of the airfield. It was a good tactic, but both American and North Vietnamese found themselves flying down a box valley. The VPAF pilot was in a quandary, and Olds knew it, telling Croker, "Watch this! That SOB is either going to have to run into the canyon wall or pull up over it, and either way he's dead!" The Vietnamese settled on the lesser of two evils and climbed; sure enough, Olds fired a Sidewinder that destroyed the MiG. Olds' F-4 cleared the far wall of the valley with 75 feet to spare. Now very low on fuel, Olds headed for home.

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Wayne, his backseater that day as well, finally were awarded Silver Stars for the "Push."

<sup>119</sup> Drendel, pp. 13-15.

Olds' victory had not gone unnoticed. Another MiG-17 arrived and went after him. Luckily for Olds and Croker, another F-4 was in the area—Major Philip Combies and Lieutenant Daniel Lafferty. Olds' hard break shook the MiG off, and the MiG-17 turned for Kep, unaware of Combies' presence. Combies fired a Sidewinder that hit, and the MiG-17 rolled upside down and hit the ground.<sup>120</sup>

It had been the most successful day for both the F-4 crews and for the 8<sup>th</sup> TFW since Operation Bolo, with six MiG-17s lost for the price of a single Phantom. Two aircrew—Wayne and Combies—added another to a single MiG kill each already had from earlier combat, while Olds, with two victories, became the leading scorer of the Vietnam War to that date, with four kills. It would be Olds' last victory. A few weeks later, he was told that Seventh Air Force planned to send him home as soon as he scored a fifth kill and made ace. Though Olds liked the idea of becoming the first ace of the Vietnam War, as well as one of a handful of two-war aces (a few USAF pilots had done it in World War II and Korea), he did not want to leave the Wolfpack. A confirmed "adrenalin junkie," Olds lived, as he often told his men, to fly and to fight. The thrill of air combat--where a pilot risks everything, including his or her life—is perhaps inexplicable to anyone who has never experienced it, but many pilots admit to enjoying it. This may partially explain why so many volunteered for second or even third tours in Southeast Asia, despite the very high probability of getting captured and/or killed. John Darrell Sherwood, in his *Fast Movers*, theorizes that Olds recognized it himself that he was becoming addicted to the adrenalin rush, and may have used the possibility of losing his job as an excuse to hold back. Certainly some of Olds' actions actually terrified his backseaters on occasion. In any case, Olds' ability as one of the finest American combat flyers in history shows in the remarkable leadership and skills on 20 May, even if the lone-eagle attack on the last MiG-17 showed a lapse in judgment (fighter pilots are always told never to fly alone if at all possible).<sup>121</sup>

The VPAF shoot down of Olds' wingman crew, van Loan and Milligan, throws an element of mystery into the battle. According to VPAF records, Dang Ngoc Ngu shot down a F-4—but it was

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<sup>120</sup> Hanak, p. 60.

<sup>121</sup> Sherwood, pp. 37-38.

claimed that he was flying a MiG-21 and scored the victory over Hanoi on 22 May. There were two F-4s lost on that date, but both were at night (the VPAF rarely flew at night) and both were shot down near Cao Nung, between Kep and the Chinese border. Either Ngu did not shoot down anything or it is an error in VPAF records, and Ngu was flying a MiG-17 on 20 May when he shot down van Loan, which is assumed by some aviation historians. A third possibility is that the MiG was being flown by a Russian pilot, which might explain why it does not show up in most VPAF lists. This thesis will assume that the report is an error and that Ngu was the pilot responsible.<sup>122</sup>

The 366<sup>th</sup> TFW closed out the month as they had begun it, with a MiG kill—two of them, on 22 May. Once more, it was the team of Titus and Zimer. This time, they were escorting a group of F-105s on a strike against the Yen Vien rail yard. South of Hanoi, Titus spotted a reflection of sunlight to the north, where no Americans would be; at the same time, Zimer detected two MiG-21s and tried to get a lock on one of them while Titus pursued. Their radar was not working properly, and once they realized they were chasing radar phantoms, they returned to the Thud formation near Hoa Lac. As they did so, a MiG-21 swept in from above and fired a missile at the F-105s. Titus called out a warning and maneuvered to attack, forcing the Vietnamese pilot to break off—the missile, apparently a radar guided RS-2 (NATO reporting name AA-1 Alkali), lost its lock and went ballistic. As Zimer locked on the radar and Titus fired a Sparrow, the MiG flew into a cloudbank. Titus flew over it and saw something that looked like debris, but then another MiG-21 appeared. Titus, assuming this was the same one, fired another Sparrow. The VPAF pilot dived for the ground, causing the Sparrow to lose the MiG in the ground clutter. Titus could not lock on for another missile—“he [the MiG pilot] went into the damndest display of flying I’ve ever seen in my life,” Titus later reported—nor could he fire a Sidewinder, since the heat of the ground confused the infrared seeker head of the missile. The MiG-21 pilot was not only evading Titus, but also getting the F-4 formation closer and closer to Hoa Lac’s defense batteries. Fortunately for the Phantom crew, they once more flew with a SUU-16 gunpod. Titus got close and fired, but observed no hits. He climbed and dived, using the kinetic energy of the

F-4 to reposition himself for another shot, but then the gunpod jammed. As Titus climbed, he was surprised to see the MiG slowly glide across a river and explode on the far bank. His bullets had hit something, either control cables or the pilot. The F-4s linked back up with the F-105s and returned to Da Nang. There, Titus and Zimer learned that the debris they had seen in the cloud was the first MiG-21—the F-105 pilots had seen the Sparrow hit and blow off a wing as the MiG entered the clouds. They also learned they had narrowly escaped being shot down themselves, as five SAMs had passed close to their F-4. Titus and Zimer had not even noticed, proving the value of a wingman. Having scored their second and third kills, putting them just behind Robin Olds on the “scoring chart,” Titus and Zimer were also proving later research mentioned earlier in this essay, where one percent of total pilot strength of a given force scores forty percent of aerial victories.<sup>123</sup>

May had been a productive month for the United States, and a turnaround from the disaster of 30 April for the USAF especially. Over the course of the month, 28 MiGs had been shot down: six to the US Navy, with the remainder by the USAF. By contrast, the VPAF claimed 19 American aircraft; postwar records confirm four (assuming that Huu Diet’s account of 19 May is accurate). While not quite as devastatingly one-sided as the massacre of Operation Bolo had been, the VPAF was taking casualties at a rate it could not afford. Ten pilots had been killed, a significant number of the available pool the VPAF had; more disconcerting was the fact that the Americans were finally hitting the airfields. While the damage was filled in quickly and the fields put back into operation by the well-trained repair crews, the VPAF was facing the same problem as the Royal Air Force had early in the Battle of Britain: they were losing pilots faster than they could be replaced. The 921<sup>st</sup> and 923<sup>rd</sup> Fighter Regiments were so understrength that they could barely field enough for a single unit. By July 1967, the VPAF’s total strength was reduced to no more than seven MiG-21s and 28 MiG-17s.<sup>124</sup> With attacks on the airfields now a direct possibility, the MiGs were moved to Gia Lam (which, as an international airport, was still off-limits to American attack) or hidden in caves and villages. VPAF

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<sup>122</sup> Toperczer, *Air War*, p. 19; Hobson, p. 102.

<sup>123</sup> Drendel, p. 17.

records make much of how well the force was dispersed, but what is not mentioned is that a MiG-21 in a cave or on a village street could not intercept an American aircraft. Once more, the VPAF would have to curtail operations until it could bring in more pilots from training, in China and the Soviet Union, and strictly limit intercepts.<sup>125</sup> In air-to-air combat, at least, the United States was winning the war. It was the nadir point for the VPAF during Rolling Thunder.

### *Summer of '67*

On 28 May 1967, the first of the improved F-4D Phantom II aircraft arrived for the 8<sup>th</sup> TFW. While the F-4C had been little more than a USAF version of the Navy's F-4B, the D model was configured more for Air Force needs, with an emphasis more on multirole (air-to-ground ordnance dropping as well as air-to-air combat) than strictly interception, with a better radar. Olds and his Wolfpack quickly tried out their new aircraft on 2 June, during a strike on the Kep rail yard. The 8<sup>th</sup> claimed three "probable" MiG kills, one of them by Olds, but none were confirmed either by Seventh Air Force or postwar VPAF records. It would be some time until a F-4D crew scored a confirmed victory. Even with the new aircraft, the F-4 was still lacking as a pure fighter.

3 June saw an American attack on the Bac Giang viaduct, bypasses, and rail sidings. As the Iron Hand flak suppression flight climbed away from their run, the F-105 pilots spotted three MiG-17s two miles away, below them. The flight dived to attack, and the MiG pilots went into a defensive circle—the VPAF was clearly avoiding dogfights if they could. Captain Larry Wiggins, flying the third Thud in the flight, was finally able to get a lock and fired his only Sidewinder. The missile hit, and the MiG slewed out of the circle, streaming fuel. Wiggins kept up the pursuit and opened fire with the Vulcan cannon, finishing off the MiG.

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<sup>124</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers, 1965-70 , p. 50.

<sup>125</sup> Toperczer, Air War, p. 20.

The second aircraft in the Iron Hand flight was flown by Major Ralph Kuster, Jr., who closed in on the leading MiG-17. With the flight leader covering him, Kuster fired his gun and missed, going into a yo-yo roll to keep the MiG in front of him. Once more he fired and missed, getting within 1200 feet of the MiG. At that point, the pilot broke hard left; Kuster managed to stay behind and nearly blacked out in the high-G turn. Seeing he was going to overshoot, Kuster hauled back on the stick and fired ahead of the MiG, which ran directly into the twenty millimeter shells. The MiG's left wing exploded less than 200 feet in front of Kuster, who flew through the explosion. The MiG rolled over and crashed.<sup>126</sup>

Two days later, it was the Phantoms' turn, though this time it was the VPAF that initiated the fight. Four MiG-17s attacked the F-105 Iron Hand flight once more, near Thai Nguyen, but attacked after the Thuds had finished their runs and were free of ordnance. As the Thuds easily outpaced the MiGs, the covering F-4C flight of the 8<sup>th</sup> TFW attacked. Major Everett Raspberry and Captain Francis Gulick were leading the Iron Hand escorts; Raspberry was a veteran of Operation Bolo. The MiGs went into a defensive circle, and after several fruitless tries to break the circle, Raspberry disengaged, got some distance, and attacked again. The 8<sup>th</sup> was carrying a mix of AIM-4 Falcons as well as their normal complement of Sidewinders and Sparrows, and Raspberry fired a Falcon at a MiG. The Falcon was, if possible, even less reliable than the Sparrow (pilots referred to it as the "Sandseeker"), and this one predictably failed to guide. Raspberry once more broke off the engagement and came back, this time at low level, firing off a Sparrow. Frustratingly, it missed as well. Finally, on his third pass, Raspberry came head-on at the MiGs and fired another Sparrow. This one connected, hitting one MiG in the nose.<sup>127</sup>

At that point, Olds and his flight arrived. After warning Raspberry of a MiG attacking across the circle, Olds fired off four Falcons and four Sparrows. None hit. (One could deduce that Olds was not trying very hard, as he did not want to be sent home, but given Raspberry's experience, it was more than likely the fault of the missiles.) Olds then passed the lead to his wingman F-4, Captains Richard

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<sup>126</sup> Hanak, pp. 62-63. Kuster's gun camera film of the MiG-17 exploding produced the best-known picture of the air war over North Vietnam.

Pascoe and Norman Wells, also veterans of Bolo. Wells noticed a MiG on the radar that was flying alone, heading for home. Pascoe headed in that direction at low level, but could not see the small, camouflaged MiG-17, even as they closed to the minimum range for their Sidewinders. The MiG broke to avoid the F-4, and Pascoe finally saw him. Olds orbited above, covering Pascoe, and had been watching the MiG for some time. Finally, he radioed, "Well, go on and shoot him, Pascoe!" Pascoe had at that point launched two Sidewinders, both of which hit and destroyed the MiG; the pilot ejected. As they climbed, Pascoe radioed back, "I just did!"<sup>128</sup> Roughly about the same time, the 366<sup>th</sup> scored near the target at Thai Nguyen. Major Durwood Priester and Captain John Pankhurst, flying a SUU-16-equipped F-4C, attacked a group of three MiG-17s stalking the F-105 strike force. In a vertical turning dogfight, Priester used the gunpod and shot out the MiG-17's engine. The MiG went down.

For the remainder of June 1967 and well into July, the VPAF was seldom seen. General Momyer was convinced enough that he reported to Congress that "we have driven the MiGs out of the sky for all practical purposes."<sup>129</sup>

In late July and August, however, the VPAF regrouped, rearmed, and returned, having once more changed tactics. Taking advantage of their MiGs' small size, VPAF pilots were instructed to approach American forces from behind at low level, make a hard climbing "pop-up" maneuver, make a single firing pass, and either head for base or China at high speed. This limited the Americans' reaction time and also limited the time in which the less-experienced Vietnamese could be pulled into a dogfight with the Americans. Coordination was also improved between the two fighter regiments, with mixed formations of MiG-17s and MiG-21s, so that the Americans would have to react to a more two-dimensional threat. Finally, the VPAF was helped by a change in their adversaries' tactics—the USAF, acting on Momyer's belief that the VPAF had been finished off, switched more of the F-4s back to strike missions, leaving less Phantoms on MiGCAPs and increasing the vulnerability of the F-105 strike forces. The latter were encouraged to try and outrun the MiGs on the way to the target, but if that

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<sup>127</sup> Hanak, pp. 63-64.

<sup>128</sup> Drendel, p. 18.



failed, to jettison their bombs and attack. While that ensured the survival of the bombers, it also practically handed the VPAF a victory. The MiGs could fly away and engage at their leisure. This marked a step backwards for the USAF.<sup>130</sup>

In late July, the VPAF made an attempt to reassert itself, attacking US Navy aircraft. On 11 July, a flight of two MiG-21s, flown by Le Trong Huyen and Dong Van Song made a hit-and-run attack on a force of A-4 Skyhawks escorted by F-8s near Hai Duong. While a flight of MiG-17s distracted the F-8s, Huyen and Song attacked and claimed an A-4 between them. According to postwar records, no American aircraft were lost on 11 July. The VPAF tried again on 17 July, attacking a group of F-8s near Thanh Hoa, Nguyen Nhat Chieu claiming one Crusader. Again, postwar records fail to bear out his claim, as the only aircraft lost this day was a F-105 to flak near Kep. 20 July saw Nguyen Ngoc Do and Pham Thanh Ngan claim a F-4 (it is not specified if it was US Navy or USAF) with their MiG-21s. No F-4s were confirmed lost on 20 July—two A-4s were shot down by antiaircraft fire, but well north of where Do and Ngan reported getting the F-4, so it was not a case of mistaken identity. None of the July attacks are borne out by postwar records, but the VPAF at least was getting some experience, and serving notice that they were not yet out of the war.<sup>131</sup>

21 July was to mark another downturn for the VPAF, however. A force of eight MiG-17s made an appearance when the US Navy struck a fuel storage facility at Ta Xa, northeast of Hanoi. Escorting the A-4 strikers were eight F-8s, once more from the *Bon Homme Richard*'s MiG-killing team of VF-24 and VF-211, the latter configured for both flak suppression and escort. As the A-4s neared the target, the MiGs came up through the clouds and were spotted by the VF-24 escort, led by Lieutenant Commander Marion "Red" Isaacks, on his fourth mission over North Vietnam.

Isaacks radioed a warning to the strike force and attacked the nearest MiG, quickly getting behind it. His first Sidewinder failed to guide, his second never came off the rail, and the third hit the target squarely in the tail. The MiG-17 exploded and fell to earth in flames as Isaacks watched. He nearly

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<sup>129</sup> Hanak, 64.

<sup>130</sup> Hanak, pp. 64-65; Toperczer, *Air War*, p. 20.

followed it a second later as one of the destroyed MiG's comrades got behind him unseen and opened fire. Isaacks, reacting instinctively to the sight of tracer shells skipping across his wings, went into a hard right break—directly into the MiG's flight path. A collision was saved by the Vietnamese pilot, who went into a split-S and dived below Isaacks' F-8. Isaacks, on fire and losing his primary hydraulic system, managed to limp back to the carrier.

Another member of Isaacks' flight, Lieutenant Commander Robert Kirkwood, also had an eventful flight. Kirkwood fired two Sidewinders at two separate MiG-17s and missed both times; attacking a third MiG-17, he, like his flight leader, had a good third attack. The Sidewinder hit and exploded, but the MiG-17 kept flying, apparently undamaged. Kirkwood closed the distance and opened fire with the F-8's four 20 millimeter cannon, and finally the MiG pilot ejected. A piece of the MiG separated from the doomed aircraft, flew back, and tore off most of Kirkwood's right tailplane, but he was able to return to the carrier as well. One more member of the VF-24 flight, Lieutenant (jg) Philip Dempewolf, also claimed a MiG-17 with a Sidewinder, but his kill was evaluated only as a probable.

VF-211 rounded out the day's events for the US Navy, as Lieutenant Commander Ray "Tim" Hubbard shot down a third confirmed MiG-17 and showed a great deal of determination in doing so. Engaging one MiG-17 attacking the flak suppression flight, his Sidewinder missed, but he was able to score a few hits with his cannon. He had to let that MiG go as two more went towards the strike force. Hubbard turned, but was out of range for his guns. With two pods of Zuni rockets aboard, and possibly remembering Theodore Swartz's unlikely kill two months before, Hubbard salvoed his rockets. At least one hit, causing one of the MiG-17s to flutter and fall behind. Hubbard finished it off with the cannon, and the Vietnamese pilot ejected, nearly hitting Hubbard's F-8 in the process. The *Bon Homme Richard* lost no F-8s in the dogfight, and could now add three more to its impressive list of victories.<sup>132</sup>

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<sup>131</sup> Toperczer, *Air War*, p. 20.

<sup>132</sup> Tillman, pp. 146-149.

The Navy's dominance of the skies over the coast of North Vietnam was added to two weeks after the F-8s had their big day of 1967. Two F-4Bs of VF-142, off USS *Constellation*, took up Barrier Combat Air Patrol (BARCAP) positions for a large carrier strike on the Phu Ly cargo loading facility near Haiphong. Flying the Phantoms was Lieutenant Guy Freeborn and Lieutenant (jg) Robert Elliot, and Lieutenant Commanders Robert Davis and Gayle Elie. So far, VF-142 had experienced a rather quiet cruise, which Freeborn described as "fly, eat, drink, play cards, man the Alert Five watch, and curse the politicians for putting us in a war they wouldn't let us win." It also gave them time to study the tactics of the MiGs they would likely be facing, including after-action reports from the USAF crews that had the lion's share of the encounters. Taking a page from the VPAF, the two F-4s flew under the close supervision of the radar controllers on the carriers in the Gulf, and orbited at 22,000 feet in thin cloud cover, rather than the customary 15,000 feet.

No MiGs were encountered during the strike, but as the strike force was exiting the area, Freeborn spotted two MiG-21s heading north, just above the cloud layer. The MiGs did not see the Phantoms; the ambush had worked perfectly. Freeborn and Davis came up through the clouds and attacked, with Davis taking the MiG on the right and Freeborn the leftmost aircraft. Davis tried to fire two Sparrows, but neither even left the aircraft, so he switched to Sidewinders, firing two, both of which missed. Freeborn had slightly better luck and damaged his target with a Sidewinder. Davis rolled high and slipped in behind the damaged MiG-21, shooting two more Sidewinders that destroyed the MiG.

Freeborn was indignant that Davis had finished off the MiG he had damaged—"The bastard shot my MiG!" he exclaimed—so repaid the favor by accelerating and pursuing the MiG-21 Davis had missed with four shots. Freeborn fired off two Sidewinders; the first also malfunctioned and never left the aircraft, but the second tracked true and destroyed the MiG-21.<sup>133</sup>

Though the ground defenses of North Vietnam continued to take a heavy toll of American aircraft, the VPAF remained quiet, occasionally making harassing attacks but never pressing their attacks. On 26 July and 10 August, VPAF records record the downing of a RF-4C by an unknown MiG-21 pilot,

but there were no American aircraft lost on 10 August in North Vietnam. There was a RF-4 lost on 26 July, but it was in Pak One, in the Annamite Mountains near Mu Gia Pass—a dangerous zone for antiaircraft fire, but far out of range of MiG attacks in 1967.<sup>134</sup>

On 23 August, the quiet suddenly changed in the largest air battle since May. The USAF launched the morning strike on the Bac Giang viaduct, and their afternoon attack on the Yen Vien railway yard, while the Navy went after a railway siding at Lac Dao, east of Hanoi. The VPAF chose to contest the afternoon strike, which consisted of a typical late 1967 strike package of six bomber flights (three of F-105s and three of F-4s), one Iron Hand flight and one Wild Weasel flight (F-105s) and a single MiGCAP flight of four F-4Cs, led by Robin Olds, which took up position between the two strike flights of Thuds and Phantoms.

Eight MiG-17s made a head-on pass at the F-105s, which probably decoyed off the MiGCAP—putting them out of position for what happened next. Two MiG-21s, piloted by Nguyen Nhat Chieu and Nguyen Van Coc, used the new tactic of attacking from below and behind, having added more insurance by attacking from the northwest, where the Americans did not expect an attack to come. Both MiGs also had underfuselage gun packs fitted. They were spotted as they climbed and the Phantoms jettisoned their bombs to fight the MiGs, but it was too late: both MiGs fired a single K-13 towards the first flight of strike Phantoms. Both connected, destroying two F-4Ds of the 8<sup>th</sup> TFW, piloted by Major Charles Tyler and Captain Ronald Sittner, and Captain Larry Carrigan and Lieutenant Charles Lane. Sittner was killed in the ejection and Lane sometime later, apparently by North Vietnamese prison guards; Tyler and Carrigan survived to become POWs.

Chieu climbed into the overcast, having missed with his second K-13, while the aggressive Coc leveled out for another missile attack on the Phantoms. As he fired a radar-guided RS-2, Chieu dived out of the overcast for a gun attack on the same F-4 Coc was trying to shoot down. The result was that Chieu's cannon fire hit Coc's engine, badly damaging the MiG-21. Coc's radar broke lock due to the

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<sup>133</sup> Elward and Davies, U.S Navy F-4 Phantom II MiG Killers, 1965-70, pp. 50-51.

<sup>134</sup> Toperczer, MiG-21 Units, p. 85; Hobson, pp. 110, 112.

damage and the missile went wide of its target. Though Coc requested to remain in the fight, apparently being quite vehement about it, but eventually the GCI and Chieu prevailed, and Coc returned to Noi Bai safely. So did Chieu.<sup>135</sup>

The USAF struck back five minutes later. As Lieutenant David Waldrop came off the target, he spotted a F-105 under attack by a MiG-17—part of the flight that had acted as decoys earlier. Waldrop engaged his afterburner, caught up, and fired his cannon in two short bursts. The MiG-17 caught fire, rolled over, and hit the ground. Waldrop, followed by his wingman, then attacked two more MiG-17s, firing a burst that hit the MiG. Wanting to keep his eyes on the damaged MiG as it flew into a cloud bank, Waldrop climbed and rolled upside down. He saw the MiG come out of the clouds and dived down, only to find that his gunsight had gone out in the hard maneuvers. Aiming by eye, Waldrop fired once more, the cannon shells smashing into the canopy and marching back along the fuselage. The MiG-17 exploded and crashed. Waldrop joined up with the other Thuds of his flight, one of which had been badly damaged by another MiG-17's cannon fire before it had been driven off by the flight leader, Major William Givens. Givens had nearly emptied his Vulcan cannon into the MiG-17. Upon their return to Korat, Waldrop claimed two kills and Givens a third.<sup>136</sup>

The dogfight of 23 August was, without a doubt, confused. On the Vietnamese side, Chieu claimed a F-105, Coc a F-4, and the MiG-17 flight (consisting of Cao Thanh Tinh, Le Van Phong, Nguyen Van Phong, and Nguyen Hong Diep) two F-105s. To further muddy the issue, there is a claim on a F-4 registered by the 923<sup>rd</sup> Fighter Regiment, attributed to Nguyen Van Tho and Nguyen Hong Diep. Postwar records confirm only two F-4s lost to MiGs on 23 August (two more F-4Ds were lost to antiaircraft fire), so it is almost certain that Chieu mistook the F-4 he shot down as a F-105. The three other F-105s claimed by the MiG-17s are discounted; some accounts list Major Elmo Baker's F-105 as being shot down by a MiG (namely Chieu), but Baker was shot down on the morning strike, which no MiGs were scrambled to attack. Most likely, the F-105 that was damaged was overzealously claimed

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<sup>135</sup> Toperczer, *Air War*, pp. 20-21.

<sup>136</sup> Hanak, pp. 65-66.

as a kill. In any case, the VPAF had done exceptionally well that day, having forced at least one flight of Phantoms to drop its bombs before reaching the target and downing two of them.<sup>137</sup>

Yet controversy was not limited to the Vietnamese. Seventh Air Force initially credited Waldrop with two kills while disallowing Givens'. After further review, however, the first MiG-17 was evaluated as only a probable. This is mystifying—while in many cases on the Vietnamese side, and in a few cases with the Americans, the kills were not verified by other sources, Robin Olds clearly states that he saw the MiG hit the ground and explode. So did Waldrop, and the two stories are roughly identical as to place, time, and circumstances. VPAF records are of little help: no MiGs are stated as being lost on 23 August, but then VPAF records rarely list *any* losses at all. An interesting possibility is one brought up by Diego Zampini's research into the US-Russia Joint Commission for POW/MIA, in which he states that some of the MiG-17s of 23 August were flown by North Koreans. This offers a possible explanation for why Waldrop's first kill was suddenly quashed by higher command: given the Johnson administration's mania for avoiding a broadening of the Vietnam conflict, they would be sensitive to admit that one of their pilots had shot down a MiG flown by a North Korean. It would also explain the "unknown pilot" who filed the erroneous claim on a F-4; Zampini's research clearly states that this pilot was, indeed, a North Korean.<sup>138</sup> With all the evidence, including gun camera film and testimony from both Waldrop's wingman and Olds, it will be assumed for the purpose of this thesis that Waldrop did indeed score two kills.

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<sup>137</sup> Zampini, "Nguyen Van Coc: A Lurking Tiger Over Vietnam's Jungle." Personal website, [www.dzampini.boom.ru](http://www.dzampini.boom.ru); Hobson, pp. 114-115.

<sup>138</sup> Zampini, "NK Pilots in Vietnam."

Whatever happened in the case of Waldrop's victories, the 23 August battle, like the one on 30 April, served as a "wakeup call" to the USAF. Olds admitted being "complete[ly] surprised" by the Vietnamese pop-up tactic, but this surprise turned to anger when he learned that Seventh Air Force had been apprised of the new tactic by intelligence sources, but the information had been lost in the bureaucracy between Saigon and Ubon. Had he known about the VPAF's switch in tactics, Olds would have split his admittedly tiny MiGCAP and covered both flights—two F-4s against two MiG-21s was an even fight, but Chieu and Coc likely would have been ordered to break off their attacks rather than get drawn into a dogfight. Olds was especially upset because he had lost two crews of his Wing. Some good did come out of 23 August, in that Seventh Air Force once more increased the number of dedicated MiGCAP F-4s.<sup>139</sup>

It was too late for the return to the old ways to benefit Robin Olds, however. His tour ended in September, and after an emotional farewell to his beloved Wolfpack, Olds was promoted to brigadier general and took over as the new Commandant of Cadets at the Air Force Academy. Olds was, predictably, quite popular with the cadets, some of whom would later fight over North Vietnam—though Olds' brusque manner initially caused some trouble. Olds volunteered for two more tours in Vietnam and actually got in a few unauthorized missions over the North early in 1972, but resigned after getting into an argument with the Inspector-General of the Air Force. Olds had offered to be broken in rank to colonel and fly combat soon after the titanic May 1972 air battles, but a compromise offered to him, in which he would be limited to a weapons inspection team, angered him to the point of no return. Nonetheless, Olds, who as of this writing is still alive and runs a camp for troubled teens in Colorado, is regarded as the finest fighter commander of any service during the Vietnam War by his peers.<sup>140</sup>

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<sup>139</sup> Hanak, p. 66.

<sup>140</sup> Sherwood, pp. 38-42. The author can personally verify this opinion, having heard it in many conversations while attending two Red River Valley Fighter Pilot Association reunions. Olds is one of three co-founders of the "River Rats."

*The Noi Bai Strikes: September-October 1967*

The success of the 23 August intercepts emboldened the VPAF to take to the air in numbers again. Most of the air-to-air activity of September 1967 consisted of the MiGs attacking, forcing the strike aircraft to jettison their bombs, and then diving away before the escorts could intervene. For all of September and most of October, the successful intercepts belonged to the VPAF.

The first of these came on 16 September, when two MiG-21s from the 921<sup>st</sup> Regiment at Noi Bai intercepted a single RF-101 Voodoo near the Red River. Though the RF-101 was fast, it was unarmed and less maneuverable than the MiG-21, and a Voodoo caught alone was in dire straits. Nguyen Ngoc Do shot down the RF-101; the pilot, Major Robert Bagley, ejected and was captured. Pham Thanh Ngan, Do's wingman, also claimed a RF-101. There was another Voodoo indeed lost on 16 September, but this was later in the day, and the pilot, Captain R.E. Patterson, reported he had been hit by antiaircraft fire. Since Patterson was able to nurse his wounded aircraft back to Laos before having to eject—something not likely to happen with a MiG-21 on his tail—Ngan's claim is likely part of a tendency of the VPAF to double claims for a given day, probably for propaganda purposes. Patterson survived and was rescued. It was Do's second kill of his career.<sup>141</sup>

3 October saw another success for the VPAF, when the USAF launched a small strike against the Cao Bang rail bridge in northeastern North Vietnam. MiG-21s of the 921<sup>st</sup> Regiment once more made the intercept, believing the force to be two RF-4C unarmed reconnaissance aircraft. EB-66 standoff jamming was particularly effective, keeping the North Vietnamese GCI from giving more than a general idea to the two MiG-21s where the F-4s were and the makeup of the force. The MiGs were surprised to find a group of four F-4Ds of the 8<sup>th</sup> TFW. Nguyen Van Coc, flying one of the MiGs, again opted for the tactic of a climbing attack from the rear quarter, and once more was successful: one of his K-13s hit the F-4 of Major Joseph Moore and Lieutenant S.B. Gulbrandson. The MiGs did not press the engagement, and Moore was able to get the burning F-4 to the Laotian border before he and



his WSO had to eject. Both were rescued. <sup>142</sup> Four days later, the VPAF struck again, attacking a Wild Weasel flight heading away from the Kep rail yard, then under attack by the 388<sup>th</sup> TFW. The F-105F crewed by Captains Joseph Howard and George Shamblee was hit in the tail by a K-13, but the Thud's legendary toughness saved the crew from death or imprisonment: the F-105 held together nearly to Da Nang before Howard and Shamblee were forced to "step over the side," to be rescued from the Gulf of Tonkin. VPAF bookkeeping is rather chaotic during October 1967, so who scored this victory is unknown; Shchbakov was still active around this time, so this may have been one of his claimed six victories. To complete the trifecta of the 921<sup>st</sup> Regiment's success in early October, Nguyen Van Coc scored on 9 October, shooting down the F-105D of Major James Clements over Thud Ridge as the strike force flew towards the Quang Hein rail siding. Clements was captured. It was Coc's fifth kill, making him the first ace of the Vietnam War. The VPAF does not officially recognize the title of "ace," so the event gets little mention in their records. However, Coc's achievement not only is a testament to his skill as a pilot, but also is worth noting due to his speed in achieving this distinction—he had done it in eight months of combat. Only Robin Olds' four victories were scored in a shorter time during the Rolling Thunder period. Moreover, all of Coc's victories have, to this point, been confirmed by American records. If the VPAF high command was a little slow in recognizing his achievements, his fellow pilots were not, nicknaming him the "Ironbird" for his determination and tirelessness. <sup>143</sup>

The F-105s got some of their own back on 18 October, when a force of MiG-17s from Kep attacked the Thuds of the 355<sup>th</sup> TFW attacking the Dai Loi rail bridge. The MiGs had been shadowing the formation, drawing the attention of the F-4 MiGCAP, which chased them off. One, however, attacked as the Thuds came off the target, and flew in front of the F-105 flown by Major Donald Russell, Jr..

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<sup>141</sup> Toperczer, *Air War*, p. 63; Hobson, p. 117.

<sup>142</sup> Zampini, "A Lurking Tiger..."; Hobson, p. 119.

<sup>143</sup> Zampini, "A Lurking Tiger"; Hobson, p. 127.

Russell throttled back, let the MiG get into a better position, and opened fire. The MiG-17 caught fire and dived into the ground.<sup>144</sup>

The loss of four aircraft to MiG-21s in the space of less than a month was another shock to the USAF, which was still trying to adapt its tactics to deal with the hit-and-run MiG attacks. The MiG-17 attack at Dai Loi was the last straw. This time, however, the shockwaves reverberated past the Seventh Air Force units to the US Navy and Washington. Since the attackers had all been MiG-21s of the 921<sup>st</sup>, operating from Noi Bai, Johnson finally removed the restrictions on all MiG bases save Gia Lam. Both Air Force and Navy launched attacks on the airfields on 24 October, culminating in a heavy joint attack on Noi Bai. Both services expected an increase and heavy losses to the defenses around the base, but for once, the VPAF seems to have been caught by total surprise. Only three aircraft were lost, all to ground fire, and eight MiGs were caught on the ground and destroyed by bombs.<sup>145</sup>

A few MiGs got into the air. The USAF had increased the number of MiGCAPs to compensate, and these were ably supported by the College Eye EC-121s, who warned one MiGCAP flight of MiG-21s approaching from low and to the rear—exactly how Van Coc had scored his five kills. Major William Kirk, along with his backseater Lieutenant William Bongartz, was leading the flight and turned around to intercept, meeting the MiGs head on. Bongartz locked on to one MiG, which frantically maneuvered to break the lock, then tried to escape by diving into the clouds. Kirk was able to stay with the Vietnamese, and fired two Sparrows. The first hit but only damaged the MiG-21, which began to smoke and slow down. Since he was carrying a SUU-16, Kirk closed in and finished it off with gunfire. The pilot ejected, close enough that Kirk turned back to fly past the pilot in his parachute. The pilot turned his back on the Americans as they flew past.<sup>146</sup>

The VPAF quickly enlisted the aid of the local population to repair the damaged airfields at Kep and Noi Bai. Since the damage at Kep was less severe, the airfield was operational by the next morning,

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<sup>144</sup> Hanak, p. 67.

<sup>145</sup> Hanak, p. 68; Hobson, p. 122.

<sup>146</sup> Hanak, p. 68. One wonders if the pilot turned his back in derision, fear of being shot in his parachute, or because the pilot did not want the Americans to see his features—which was very important if the man happened

and the 923<sup>rd</sup> Regiment put it to good use, scrambling MiG-17s to protect the base from another American attack. Nguyen Huu Tao claimed a single F-105 near Kep, but postwar records do not bear out the claim—there were two F-105s lost on this date, but both were lost over or near Hanoi to antiaircraft fire.<sup>147</sup>

26 October saw the Americans increasing the pressure by hitting Noi Bai again, once more resulting in an intense air battle, the largest since July. The VPAF sortied six MiG-17s to attack a photo reconnaissance mission, defended by a strong escort force of four F-4Ds of the 8<sup>th</sup> TFW. The two RF-4s left the area rapidly as the MiGs appeared, clearing the airspace for the armed F-4s to attack. The MiGs were angling for the rear quarter of the four F-4s, so the flight leader, Captain John Logeman, Jr., ordered his flight to turn into them. The two forces met head-on, with Logeman firing two Sparrows at the lead MiG-17. He dodged to avoid cannon fire and neither he nor his backseater, Lieutenant Frederick McCoy II, saw the Sparrows hit. His wingmen did, however, and the MiG pilot ejected. Logeman got off another shot at a MiG-17 with a Sparrow, but was forced to break lock when he came under fire from another MiG.

The lead crew of the second element, Captain William Gordon III and Lieutenant James Monsees, found they were too close to engage with Sparrows, so broke off, gained some room, and reengaged. The F-4Ds were carrying Falcons instead of Sidewinders on this flight, so Gordon had to wait for the missile's seeker head to cool (which was achieved by liquid nitrogen being pumped into the missile; the Russian K-13 worked on a similar principle). By the time he was able to achieve a lock with the unreliable Falcons, the MiG had turned around and was shooting at him. The Falcon (unlike the standard AIM-9B Sidewinder) could be slaved to the F-4's radar, and Gordon switched modes, then

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to be a Russian.

<sup>147</sup> Hobson, p. 122.

fired. Again, Gordon was not able to see the missile hit, but Monsees did. Another MiG pilot joined his comrade in a parachute.

Gordon's wingman crew, Captains Larry Cobb and Alan Lavoy, spotted two MiG-17s heading away from the fight. Gordon passed the lead to Cobb, and dived through the MiG formation—too quickly, for the F-4s too close for Sparrows and their Falcons had to cool a little longer. On the last pass, Cobb was able to achieve a heat lock with his Falcons and fired, hitting one of the escaping MiGs. With his aircraft afire, the Vietnamese pilot ejected. The Americans headed for home, low on fuel, but with three kills to their credit—two of them with the unreliable Falcons, a first.<sup>148</sup>

The US Navy had not been idle during this time, and the increased activity by the VPAF led the Navy to adopt the MiGCAP concept, though it was a somewhat looser interpretation than the USAF's. The Navy had, to this point, employed Target CAPs (TARCAPs or escorts), but since these used the same radio frequency as the strike forces, the radio net would quickly become saturated with messages, making coordination difficult, at best. The new MiGCAPs would be under control from a separate radar picket ship (callsign Harbormaster) on a discrete frequency and cleared to engage any MiGs in their selected patrol zone, not tied to a single strike mission. This development was regarded as long overdue in the Navy, and was immediately popular with aviators, as it allowed them to use the F-4 to its full ability, including Beyond Visual Range (BVR) attacks.

Though the bulk of the US Navy's strikes on 26 October were against Noi Bai and the Hanoi thermal powerplant (resulting in the loss of two A-4s and a F-8).<sup>149</sup> Further south, near Thanh Hoa, the Navy also launched a strike on the Van Dien barracks. This strike was covered by a MiGCAP orbiting between Thanh Hoa and Hanoi, consisting of two F-4Bs of VF-143, off USS *Constellation*.

Harbormaster vectored the F-4s against two radar contacts heading south from Hanoi and cleared them to fire BVR Sparrow shots. The lead F-4, crewed by Commander D.K. Grosshuesch and Lieutenant James Souder, suffered a radar failure, while the second Phantom, crewed by Lieutenants (jgs) Robert

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<sup>148</sup> Hanak, pp. 68-69.

<sup>149</sup> Hobson, pp. 122-23. One of the A-4s lost on this date was flown by Lieutenant Commander, later Senator,

Hickey, Jr. and Jeremy Morris, got a lock, Hickey fired a Sparrow that never left the aircraft. As they closed to engage with Sidewinders, they realized that the failures were a blessing in disguise—the two radar contacts was the other MiGCAP flight of Phantoms.

Having narrowly avoided a disastrous friendly fire incident, the two F-4s were once more vectored north to engage a new contact. They were limited to a visual search (not that, at this point, either crew probably wanted to chance a BVR shot). This time, however, it was indeed a MiG-21, and Hickey fired a Sidewinder. It missed. Souder was able to get his radar back online and locked on; Grosshuesch tried to fire a Sparrow, but his F-4's mechanical problems once more cropped up—this time a complete failure of his firing systems. Hickey's radar worked, however, and he fired a Sparrow that took the MiG-21's left wing off. The F-4s returned to the *Constellation*.<sup>150</sup>

Along with the continual strikes on Noi Bai, the USAF also went after the bridges in Hanoi itself—again, another first and a needed development if Rolling Thunder were to succeed. Hanoi was a major chokepoint for supplies, with at least two-thirds of the supplies from China coming over two bridges—the Canale de Rapides bridge over the Song Duong (Black) River northeast of the city, and the Paul Doumer Bridge over the Song Hong (Red) River immediately east of Hanoi itself. Both bridges were heavily defended, and a VPAF response was almost guaranteed. Flying in the 355<sup>th</sup> TFW's strike on Canale de Rapides was Captain Gene I. Basel, who wrote a superb account of the strike in his book, *Pak Six*. As the strike force closed on Hanoi, Basel describes the defenses:

“The sky was fast filling up with flaming missiles [SAMs]. We were caught in a massive crossfire. They came through the formation from both sides, from ahead...the Weasels were going crazy. Against this attack, the most savage to date, they could do little. All their Shrikes were gone. They had killed three sites, but they could kill no longer. The SAMs knew it...

“More missiles that we'd ever seen sailed through the morning sky. The entire Red River Valley became a huge launching pad for SAMs...they came from the east, out of the glare of the morning sun, and from the city, left and right, salvos of two or three—guided missiles, each a kamikaze intent on our destruction.

“We had to descend. Like a wounded colossus, the force started down, ragged but still together, still heading for the bridge over the Canale de Rapides...

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John McCain.

<sup>150</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1965-70*, pp. 52-54.

“A flaming missile streaked straight for my head. I ducked and shoved the stick forward. The missile passed above and exploded orange and angry...I completed a nice aileron roll, right there over Hanoi, and saw the force suddenly diving away from me toward the bridge! My gloved hand slammed the stick into the rear right corner of the cockpit, sending me hurtling down after them.”

After nearly being hit by his flight leader's bombs, Basel dropped his ordnance and climbed away, through the

intense antiaircraft fire.

“I flew like a wild man, muttering insanely to myself and heading generally south. Vapor clouds skittered over the windscreen as the big Thud hammered through the moist air. Then, I was out of it. There were no holes in my jacket, or the canopy, or the plane that I could see. One thing was wrong: I was alone.

“I peered around looking for Cappy [Edward Capelli, Basel's flight leader and close friend] or anyone at all. The mist was heavy at this low altitude. Then I saw them, off to my right and ahead of me a mile or so. I turned to intercept them, but suddenly a silhouette popped into my peripheral vision to the left.

“A single...no, there were two of them.

“I'd never seen a MiG before, and I had always felt it would be hard to identify one quickly. Not so: the high swept-back tail and blunt nose left no doubt. They were as MiG as MiGs could be, zipping along, trying for a shot at the Thuds ahead of me.

“It was not a memorable aerial battle. They didn't see me. I whispered ‘Jesus’ and filled the sky with twenty millimeter bullets. It didn't seem fair. I wanted to honk or something. The big gatling gun spat bullets so fast that it sounded like a big burp, rather than a gun. The leading MiG flew into the barrage and flashes of light glimmered and winked on his tail section. When he felt the hits, he did the swiftest reversal I've ever seen. I tried to keep the gun pointed at him, but it was impossible. I flashed past close by, my eyes wide with the nearness of this alien creature, beautiful in green battle dress, standing on its wing in a hard left break: flaming, and mortally wounded.

“My speed was considerable. It allowed me to keep turning west without worry of the second MiG. I'm sure he was busy with his stricken leader anyway...at zero altitude and full afterburner cooking, I blistered out of there gratefully.”<sup>151</sup>

At first, Basel's kill was disallowed by Seventh Air Force, but after testimony from the following flight of F-105s and Basel's gun camera film, the claim was allowed to stand.

Three days later, the Navy scored again with their MiGCAPs. This time, it was VF-142, also off *Constellation*. Leading the section of two F-4Bs was Lieutenant Commander Eugene Lund and Lieutenant (jg) James Borst. Not long after arriving at their patrol station, Harbormaster vectored the two Phantoms north on a pair of “bogeys,” unidentified aircraft. Lund saw the bogeys a short time later, and saw that there were not two, but four MiG-17s, flying so close together that they presented only two targets on radar. Borst locked on to the second MiG in the formation and Lund fired a

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<sup>151</sup> Drendel, pp. 25-26.

Sparrow, which struck behind the cockpit and destroyed the MiG-17. The MiGs went into a defensive break, and after a spate of hard maneuvering, Lund got behind the second section; Borst once more locked on, and Lund fired another Sparrow. The Sparrow shot forward and exploded two hundred feet in front of their F-4. Debris from the missile was instantly sucked down the intake and caused the right engine to fail, while fragments pitted the Phantom's fuselage and severed hydraulic control lines. Lund and his wingman, who had suffered a radar failure, stayed in the fight and after a few more turns, neither side was able to get in position to fire and disengaged. Lund and Borst made it back to their carrier, but without functioning hydraulics, were unable to lower the landing gear; both ejected short of *Constellation* and were picked up.<sup>152</sup>

#### *The VPAF's Best Season: November-December 1967*

November began on a high note for the Americans. While Kep airfield was kept functioning only by herculean efforts on the part of the repair crews, Noi Bai was effectively closed, its runway pitted by bomb craters, and most of the other fields were damaged to some extent. Gia Lam, protected by its status as an international airport, was still functional, and so some MiG sorties were launched from there. With the losses the VPAF had taken in October, it was thought by some Americans that the North Vietnamese would once more stand down. Indeed, losses had been high—by the end of November, it was estimated that only four MiG-21s and twelve MiG-17s were left in the entire country, though many aircraft had been flown to safety in China.<sup>153</sup>

The USAF struck first in November. On 6 November, the USAF attacked Kep airfield again with F-105s, with a small, four-aircraft MiGCAP of 8<sup>th</sup> TFW F-4Ds. This time, however, the flight was split up to cover the entire strike force, so that the MiGs could not surprise it from behind. As the F-105s pulled up from their bomb run, four MiG-17s attacked. The F-4Ds fell in behind the MiGs and the

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<sup>152</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1965-70*, pp. 55-56.

<sup>153</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1965-70*, p. 57.

flight leader, Captain Darrell Simmonds, with his WSO, Lieutenant George McKinney, Jr., forced the lead MiG-17 to break off his attack on the Thuds. Simmonds' F-4 had a SUU-16 gunpod, and he used it with lethal effectiveness, setting the MiG on fire. As they flew past, the VPAF pilot ejected at very low level and the aircraft exploded in the trees below. As they climbed back to altitude, McKinney spotted another MiG-17 heading for Kep below and to their right. Simmonds rolled back down and came up under the MiG. The pilot broke and climbed, but it was too late: Simmonds opened fire with the gunpod once more. The MiG's fuel tanks touched off and the aircraft blew apart. There were other MiGs approaching, but low on fuel, Simmonds and his F-4s disengaged. In a very short time, Simmonds and McKinney had scored two kills, the only time with a gunpod in a single mission.<sup>154</sup>

It was to be the last bit of good news for the USAF for some time. Though Noi Bai's runways were badly damaged, the taxiway was still operable, and this became the base's active runway until the weather gave repair crews time to fill in the craters, and prevent more damage from the Americans. While the MiG-21s flown by the VPAF had a lot of disadvantages compared to the more advanced American aircraft, the Mikoyan-Gurevich design bureau had anticipated operations from primitive or damaged bases. The MiGs had low-pressure tires designed to operate from rough fields, while the fuel tanks were gravity-fed rather than pressure-fed, as on American aircraft. While the American aircraft could be fueled much faster, the MiGs could be fueled, albeit laboriously, by a single man with an everyday fuel drum. The North Vietnamese put these attributes to good use during the fall of 1967, and on 8 November, operations began from Noi Bai's taxiway.

Two MiG-21s of the 921<sup>st</sup> Fighter Regiment, piloted by Nguyen Hong Nhi and Nguyen Dang Kinh, took off to intercept the morning American strike on the Dai Loi railway bypass near Noi Bai. The two MiGs went after the F-105s near Yen Bai, but found themselves under attack from the 8<sup>th</sup> TFW's MiGCAP, resulting in a dogfight over northwestern North Vietnam. Nhi fired a K-13 and reported that the F-4 exploded, while Kinh's target dived into a cloud. Rather than follow, Kinh went over the

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<sup>154</sup> Hanak, pp. 71-72. Some USAF lists only credit Simmonds and McKinney with a single kill, but the official list in Hanak's book correctly gives them credit for two.



clouds and caught the Phantom as it came out the other side, also firing a K-13 that hit. The two then unsuccessfully engaged a third F-4 before running out of missiles and being forced to break off; they later claimed two F-4s for the day. In actuality, only one F-4 had been lost on this date, that of Major William Gordon (who had shot down a MiG-17 a week previously, on 26 October) and Lieutenant Richard Brenneman. Gordon was able to get his F-4 nearly to the Laotian border before they had to eject, so it is likely that this was Kinh's kill. (Gordon was rescued, while Brenneman was captured.)

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17 and 18 November saw the USAF again strike the MiG bases, putting Kien An out of action for two days and further damaging Noi Bai. The latter attack was done in poor weather, the American strike force using the TSQ-81 "Skyspot" bombing radar installed at Lima Site 85, on a mountain ridge just across the Laotian border, near Dien Bien Phu. Skyspot was developed from a Strategic Air Command bomb-scoring radar that allowed B-52s to make simulated nuclear bomb attacks, and was found to be a perfect guide for aircraft to bomb accurately through heavy cloud cover. It also required aircraft to fly level through the bomb run, and this proved fatal to two Thuds on 18 November—a Wild Weasel F-105F piloted by Major Oscar Dardeau and Captain Edward Lehnhoff, and a single-seat F-105D flown by Lieutenant Colonel William Reed, both of the 388<sup>th</sup> TFW. A section of MiG-21s made an attack from behind; Dardeau and Lehnhoff's Thud disintegrated and both men were killed, but Reed was able to make it to Laos before he ejected, and was rescued. Continuing his remarkable run, Nguyen Van Coc was responsible for the F-105F, while Reed's F-105D is listed as an "unknown," which could mean Shchbakov was responsible.<sup>156</sup>

With Kien An repaired by 19 November, the 923<sup>rd</sup> Regiment moved four of its MiG-17s there, hoping to stage another ambush, as had been done earlier in the year. This time, it had even better results for the VPAF: four MiG-17s, flown by Ho Van Quy, Le Hai, Nguyen Dinh Phuc, and Nguyen Phi Hung, scrambled from Kien An to intercept a large US Navy strike on bridges near Haiphong and

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<sup>155</sup> Toperczer, *Air War*, p. 22; Hobson, p. 124.

<sup>156</sup> Toperczer, *MiG-21 Units*, p. 18; Hobson, p. 126.

Kien An itself. As the F-4 TARGAP turned towards two of the MiG formation, Hai and Phuc attacked from behind. Hai's MiG-17 was carrying K-13s this day and his shots were accurate, blowing the wing off of a VF-151 F-4B flown by Lieutenant Commander Claude Clower and Lieutenant (jg) Walter Estes. Seconds later, their wingman F-4B, flown by Lieutenants (jg) James Teague and Theodore Stier, was hit by Phuc's cannon fire. Clower and Stier survived to become POWs, while Teague and Estes died in their Phantoms. Nguyen Phi Hung also claimed a F-4B on this mission, but postwar records do not bear him out—nor do they bear out the report of Vu Ngoc Dinh and Nguyen Dang Kinh, who claimed to have shot down an EB-66. No other F-4Bs were lost on 19 November, and no EB-66s at all. The day had been bad enough for the Americans as it was.<sup>157</sup>

20 November was the last of the November dogfights. The 388<sup>th</sup> TFW's F-105s flew a strike on the Lang Lau railway bridge, and were intercepted near Yen Bai by two MiG-21s of the 921<sup>st</sup> Regiment, one flown by Nguyen Van Coc. Coc got past the F-4 MiGCAP and attacked Captain William Butler's Thud. Butler went into a hard break, but it was too late: Coc shot him down with two K-13s. Butler became a POW, and Coc's seventh victim.<sup>158</sup>

There was little air activity over the North for the next two weeks, due to bad weather, but the weather cleared on 14 December, with the USAF attacking the now-repaired Doumer Bridge, and the US Navy mining the "Bamboo Canal" between Hanoi and Haiphong, the latter setting up one of the most desperate dogfights of the Vietnam War. Four F-8s formed the escort for the minelaying A-4s: two from VF-162 (flown by Commander Cal Swanson and Lieutenant Richard Wyman) on TARGAP, and one from VF-111 (flown by Lieutenant Commander Richard Schaffert) escorting Iron Hand A-4s. Schaffert's F-8 carried three instead of the normal four Sidewinders, one having been found as faulty before launch.

As they went "feet dry" on the coast, Harbormaster radioed a warning: two MiG-17s had been detected taking off from Gia Lam. Not long afterwards, Schaffert turned to engage a SAM site that was

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<sup>157</sup> Toperczer, *Air War*, pp. 22-23; Hobson, pp. 126-127.

<sup>158</sup> Zampini, "A Lurking Tiger,"; Hobson, p. 127. According to Toperczer's research, this kill was unclaimed

tracking them with its acquisition radar. Harbormaster warned Swanson's formation that there were now MiGs three miles west of him, which made no sense—the MiG-17 did not have the speed to close the distance that fast. That meant that there were more than two MiGs in the area. Schaffert saw that one of the Iron Hand A-4s was moving in to attack the SAM site, so covered him as he did so. As he took up position near the A-4, he noticed the reflection of sunlight off a canopy low and to the left: two MiG-17s, a mile away.

Schaffert radioed a warning and dived to intercept the MiG-17s. They had spotted him and dropped their wing tanks, turning into him. Schaffert came out of his dive to turn in behind the MiGs. He looked behind for the A-4s and saw to his horror that two more MiG-17s were rolling in from above—he was caught in a classic high-low trap. Schaffert maneuvered hard and turned inside the MiGs. To make matters worse, the A-4s had lost sight of him, and the high-Gs caused by the break had forced his oxygen mask under his chin. Schaffert was low enough that hypoxia was not a problem, but he could not use his radio, either, which meant he could not call for help.

Schaffert's dive-and-climb had worked, and he was now on the tail of the first pair of MiG-17s. Unfortunately, the second pair was now behind him. Schaffert kept trying to engage the four MiGs, staying on the offensive whenever he could, using the F-8's superior abilities in the vertical plane. He fired two Sidewinders; the Vietnamese fired two K-13s. Neither side scored a hit, because of faulty missiles or bad shot angles. Ending up behind the first pair again, Schaffert fired off his last Sidewinder to distract the leader's wingman, then opened fire with his cannon on the lead MiG-17. It just was not Schaffert's day: his cannon jammed. Tracers skipped over his wings, as the other MiGs resumed their chase. "I suddenly felt very despondent with all my firepower gone," Schaffert would later say.

He climbed, quickly followed by the second pair of MiGs, going into a vertical rolling scissors. The lead MiG-17 stayed with Schaffert, though the Vietnamese's wingman rolled out of the engagement in the third turn. Schaffert was losing the fight and knew it; he rolled out and shoved the nose down,

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by the VPAF, much less any individual pilot.

engaging the afterburner in a vertical dive. He pulled out below a hundred feet, and low on fuel, decided that the getting was good and ran for the coast. The MiG-17 tried to pursue for a time, then gave up and turned away.

Schaffert was clear, but the MiG-17 pilot was not yet through dueling Crusaders. The dogfight had been tracked by one of the A-4s, and the other pair of F-8s, having seen the strike Skyhawks back to the coast, charged back into the fight. Swanson and Wyman both fired at least two Sidewinders that failed to guide or were evaded, but Wyman finally connected with a missile, blowing off the MiG's wing. The MiG spun in with its pilot, whose identity remains unknown to this day. "He was a tiger," Swanson commented, "he came to fight." The VPAF claimed a F-8 shot down, but all three made it safely back to the *Oriskany*, though Schaffert landed with about a minute's worth of fuel left in his tanks.<sup>159</sup>

Two days later, the VPAF struck again, this time when a pair of MiG-21s attacked the USAF's MiGCAP F-4s covering the morning strike. Shot down in this engagement was a F-4D piloted by Major James Low and Lieutenant Howard Hill as they attempted to break off from the fight due to low fuel, and both men were captured by the North Vietnamese. Suprisingly, the VPAF has no record of a claim made on this day.<sup>160</sup>

The target for 17 December was the Lang Lau railway bridge and Noi Bai airfield, with a large force of 32 F-105s and F-4Ds acting as the strike forces, escorted by the usual array of Wild Weasel F-105Fs and MiGCAP F-4Ds. As expected, the VPAF responded in force, but with a level of coordination not seen in some time. Like the RAF had done to the Luftwaffe in 1940, the VPAF split their interceptors, the MiG-17s taking on the CAP F-4s while the MiG-21s made high-speed runs on the F-105s. The MiG-17s claimed three F-4s shot down, but only one is confirmed by American records, that of Major Kenneth Fleenor and Lieutenant Terry Boyer, who lost a gun engagement with a unknown Vietnamese pilot. Both men were able to eject and became "guests" of the Hanoi Hilton. The F-105s that struck

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<sup>159</sup> Tillman, pp. 150-155.

<sup>160</sup> Hobson, p. 128. Low was already an ace, having shot down nine MiG-15s during the Korean War, and later

Lang Lau fared no better; the MiG-21s of the 921<sup>st</sup> Regiment claimed three on the day, two to Vu Ngoc Dinh and one to Nguyen Hong Nhi. Only one actually went down; a K-13 fired by Dinh sent Lieutenant Jeffrey Ellis' Thud into a flat spin, and he just barely had time to eject, joining Fleenor and Boyer on the road to the Hilton.

The Noi Bai raiders did a little better. Warned by Red Crown of a single MiG-17 taking off from Gia Lam, the third aircraft of the MiGCAP flight spotted the MiG at low level and got permission to attack from his flight leader. The pilot of this F-4 was a little unusual in that he was not a USAF pilot, but a US Marine aviator on exchange duty, Captain Doyle Baker; his backseater, Lieutenant John Ryan, Jr., was Air Force.

Baker dived on the MiG-17, firing his centerline SUU-23 gunpod. The MiG turned into the attack, but Baker did not attempt to turn with the MiG. He climbed, rolled into a split-S, and made two more attacks in the same fashion until the gunpod ran out of ammunition. Seeing no damage to the MiG, which was now heading back for Gia Lam, Baker armed his AIM-4 Falcons. Despite the Falcon's remarkably poor reputation, this one worked and hit the MiG-17 in the tailpipe. Flame and smoke burst from the stricken aircraft, which went into a spin. Baker returned to the CAP flight, the first Marine to score an air-to-air kill in the Vietnam War.<sup>161</sup>

The final aerial engagement of 1967 came on 19 December, when the USAF sent strikes against the Viet Tri and Tien Cuong railyards and the Dai Loi rail bridge. As the force approached the Black (Song Da) River, one of the MiGCAP F-4D flights called out that they had spotted bogies approaching from the rear. Since this was a common MiG-21 tactic, the other MiGCAP flight turned back to engage. It turned out to be other F-4s, but the VPAF benefited from the mistake, as about six MiG-17s attacked the F-105s. The Thuds dropped their bombs and turned to fight as the F-4s rushed in. One of them, piloted by Major Joseph Moore and Lieutenant George McKinney, set up for a Sparrow shot at a distant MiG-17 when another pulled up in front of them. Moore switched to the gunpod and opened

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criticized his flight leader for not breaking off until their fuel level was critical.

<sup>161</sup> Hanak, p. 72; Hobson, p. 128.

fire. The pod apparently malfunctioned, as its rate of fire was lower than usual, but smoke began streaming from the MiG. Moore overshot the MiG and looked back to see if it was going down, but at that point he himself came under attack. When Moore got away from his attacker, he checked again, but the sky was empty.

Meanwhile, the second force was making its run on the Dai Loi bridge and came under attack from the same group of MiG-17s. Major Robert Huntley and Captain Ralph Stearman, flying one of the Wild Weasel F-105Fs, claimed one MiG in the battle. Majors William Dalton and James Graham, in the second F-105F in the Weasel flight, spotted a MiG-17 coming in behind Huntley. Huntley dropped his speed a little, let the MiG go out in front, and attacked with the cannon. The MiG began to break up as it went upside down. Almost simultaneously, the third F-105F, flown by Captain Philip Drew and Major William Wheeler, also downed a MiG-17, coming in at the MiG's blind spot, closing to within a hundred feet (Drew commented that he waited until the "end of the MiG's wingtips [were] on each side of the canopy bow") before opening fire. After Drew evaded another MiG-17, the Weasels joined up and headed home, as did the force. The first had never gotten close to the target, while the Dai Loi bridge had been damaged. The VPAF initially claimed four kills, but this was later downgraded to just one, claimed by Nguyen Van Coc.

As it turned out, Dalton and Graham had attacked the same MiG-17 damaged by Moore and McKinney; apparently the MiG pilot had elected to stay in the fight. Both crews were given a half kill each, one of only two instances this occurred in Vietnam for the USAF. Drew and Wheeler's MiG kill was confirmed, but Huntley and Stearman's was disallowed and claimed only as a damaged. Nguyen Van Coc also apparently only damaged his F-105 claim as well, the only one of Coc's claims not confirmed by postwar American records.<sup>162</sup>

*1967 in Retrospect*

1967 was the busiest year of the air war over North Vietnam. After reverses suffered in late 1966, Operation Bolo had restored confidence in the US Air Force. The leadership of Robin Olds from January to September 1967 had turned the 8<sup>th</sup> Tactical Fighter Wing into a deadly instrument of war, and the Wolfpack's example also gave impetus to other units to excel as well. The Navy had also done well, and if it had not scored as many victories as the USAF, it was not from a lack of trying. When combined, both services had shot down 74 VPAF MiGs.

There were still problems, to be sure. While newer marks of the Sidewinder were coming out and proving reliable, the Sparrow was still very unreliable, despite the increase in number of kills. The SUU-23 gunpod had made a big impact, and the 388<sup>th</sup> Tactical Fighter Wing even adopted it as part of their unit's emblem. It had allowed the F-4 to make kills at very close range, something it had lacked when only relying on missiles. While accuracy left something to be desired, the gunpod's ability to produce a lethal cone of shells made it fairly certain that at least one shell was going to hit its target—and that one shell could find a fuel tank or the pilot. Pilot quality was also proving a decisive, if not the decisive factor. Many times, the well-trained Americans were able to make a kill, or avoid becoming one, where a VPAF pilot would fail and/or get shot down. Coordination between the USAF's College Eye EC-121 airborne early warning aircraft and the Navy's Red Crown and Harbormaster radar ships had also improved. Aerial tactics of the pilots themselves still needed work, but more and more F-4 pilots were learning to use the vertical plane, where their aircraft did best. Finally, when Johnson and McNamara allowed strikes to be made on the VPAF's airfields, the MiG threat diminished to almost nonexistence during the summer of 1967.

The VPAF, for its part, could see the first part of 1967 to be an unmitigated disaster, while the second half an unparalleled success. After losing two-thirds of their MiG-21 force in Bolo and subsequent engagements, the MiG-17s had to shoulder the workload. They had done fairly well, and by 30 April, the VPAF could honestly claim that they were back on track. Once the attacks on the VPAF's airfields and infrastructure began, however, the VPAF had nearly ceased to exist. General

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<sup>162</sup> Hanak, pp. 73-74.

Ryan's report to Congress that the Americans had "driven the VPAF from the sky" was not an idle boast. Had the pressure been kept up in a daily attack on the bases, the Americans might have been able to outstrip the ability of the repair crews to keep pace. It had been the low point of the North Vietnamese' pilots experience of the war.

As was usually to occur during the Vietnam War, the pressure was not kept up. The VPAF was allowed to have time to recover, and it did in a remarkable way. The arrival of new aircraft and more pilots from China and the Soviet Union was a help, but it was how those aircraft and pilots were used that made the difference. The VPAF determined that they were best suited to defend the area around Hanoi and Haiphong, which allowed for better coordination, more time patrolling, better reaction time, and quicker turnaround time on the ground. It left two-thirds of North Vietnam open to the Americans, save for the ground threat, but the bulk of targets were concentrated in that area in any case. During August and September of 1967, the VPAF had slowly recovered its own confidence; though VPAF records are sketchy when it comes to pilot morale and individual effectiveness, it can be safely assumed that Nguyen Van Coc's "ace run" had the same effect on Vietnamese pilots as Robin Olds' run had on American pilots. They gained confidence, in that what one man could do, so could another; they were able to analyze Coc's tactics and adapt them for their own use; and being fighter pilots and naturally competitive, Coc's goal gave them something to beat. By November, the VPAF was once more contesting most strikes against targets in Pak Six, and not only staying even with the Americans, but beating them. This was a tremendous psychological blow to the United States' airmen—North Vietnam was supposed to be a backward, generally agrarian country, and yet the VPAF's pilots were shooting down two or three USAF or Navy aircraft to every one of their own lost. Given that the VPAF's commanders were content with keeping their force alive and in combat, 1967 had started off badly, but by the end of the year, the VPAF had excelled even past the expectations of a year before. VPAF records logged 129 separate engagements with 124 American aircraft claimed destroyed. This figure takes its own share of blows when put under the scrutiny of research, with only 26 of these kills



confirmed.<sup>163</sup> Nonetheless, considering the odds, the VPAF had gone phoenixlike from the nadir to the zenith of its combat power.

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<sup>163</sup> Toperczer, MiG-17 and MiG-19 Units, p. 50.

## ***1968-1971: The War Abbreviated***

### *Introduction*

Air combat over the North continued at a much lower tempo in early 1968. With the Tet Offensive turning American public sentiment against the war, President Johnson ended bombing north of the 20th Parallel in March 1968. The venue for air combat moved south into the panhandle of North Vietnam, mostly between the US Navy and the VPAF. Honors for this period were roughly even, though the Navy introduced tactics that helped it gain the upper hand. By July 1968, air combat over North Vietnam was coming to a halt, ending completely when Rolling Thunder was suspended on 31 October 1968.

The USAF and the US Navy took stock of the situation at the close of Rolling Thunder, and neither liked what it saw. The Americans were barely keeping above parity with a force they ostensibly outnumbered and outgunned. The USAF decided that new technology, in the form of improved missiles and the internal gun-equipped F-4E was the answer to the air combat problem. The US Navy took a different path. Following the publication of the Ault Report, which exposed numerous flaws in naval air training for air combat, the Navy embarked on the creation of a specialized school, which became known as Top Gun. Using dissimilar aircraft to simulate MiG-17s and MiG-21s, students were brought in from F-4 squadrons across the Navy, trained in air combat, and sent back to the fleet to disseminate their knowledge. Some students were also able to participate in a top secret program known as Have Idea, flying captured MiGs over the Nevada desert and learning the strengths and weaknesses of their enemy's aircraft. By 1971, the Navy had at least one Top Gun-trained F-4 aircrew in every fighter squadron. The VPAF, for its part, rebuilt its force, rested its pilots, and received new aircraft in the form of improved MiG-21s and the MiG-19. It also was able to engage in a little air combat training of its own, against unmanned Firebee reconnaissance drones.

With the election of President Richard Nixon, limited reconnaissance sorties were begun over the North Vietnamese panhandle once more. When the VPAF began to intercept these, Nixon authorized

the pilots to return fire and launch “protective reaction” sorties. The very limited air battles in 1970 and 1971 were another case where honors were roughly even on both sides. Anticipating that Nixon might renew the strategic bombing campaign, VPAF pilots began to train to fly at night, and ranged into Laos to attempt attacks on American aircraft there, including B-52 bombers.

### *The Pre-Tet Fights*

The increasing aggressiveness of the VPAF, especially the MiG-21s, was noted by the USAF. Pilots reported that the Vietnamese were less apt to the “one pass, haul ass” tactic, and were more willing to get into protracted battles. Once more, the USAF began increasing the amount of F-4s dedicated to escorting strike forces, and making the force smaller and easier to defend. The VPAF, meanwhile, received a new crop of 29 MiG-21 qualified pilots from training bases in the Soviet Union and China, roughly doubling the pool of available pilots.

Neither side had long to wait before the air war was joined again. On 3 January 1968, twenty-four hours after the end of the New Year’s holiday bombing halt, the USAF sent two separate strike forces towards Pak Six–Alpha Force, consisting of four flights of bomb-carrying F-105s, two F-105 Iron Hand flights, and two MiGCAP flights of F-4Ds from the 8<sup>th</sup> TFW, aimed for the Dong Dau railway bridge. Bravo Force was made up of all F-4s—three strike, one Iron Hand, and two escort flights. In an effort to throw off the VPAF’s coordination, the forces attacked from two directions and at staggered times, both in the morning.

North Vietnamese ground radar detected Alpha Force near Dien Bien Phu, and scrambled two MiG-21s, piloted by Nguyen Dang Kinh and Bui Duc Nhu, from Kep. Soon thereafter, four MiG-17s from Gia Lam also took to the air, flown by Luu Huy Chao, Nguyen Hong Diep, Bui Van Suu, and Le Hai. The MiG-21s made the first intercept, diving out of the sun on the F-105s, firing off their missiles, and heading for home. Having been separated in the fight, both claimed a F-105 each, but only Kinh had connected: Colonel James Bean, one of the 388<sup>th</sup> TFW’s senior officers, was forced to bail out and was soon captured. The MiG-21s headed back to Kep, where Kinh came in too fast and went off the runway, badly damaging his aircraft.

The MiG-17s went after Bravo Force, but could not find the Americans in the morning fog and haze in the area. They too turned for home when one of the MiG pilots saw eight pairs of sooty brown streaks in the sky to their left—the unmistakable calling card of a F-4 Phantom II. The MiGs accelerated into the attack, and the two sides met head-on. Lieutenant Colonel Clayton Squier and Lieutenant Michael Muldoon made a hard left turn in afterburner, and fired an AIM-4 Falcon. The missile tracked and hit the tail of Luu Huy Chao's MiG-17. Chao managed to keep control of his damaged fighter, got off a few bursts at one of the other F-4s, and then decided discretion was the better part of valor; he coaxed the MiG-17 back to Gia Lam. His wingman, Nguyen Hong Diep, was not quite as lucky. Diep attacked Squier's wingman, but then came under fire himself as Major Bernard Bogoslofski and Captain Richard Huskey of the MiGCAP dropped in from above. A burst of gunfire from Bogoslofski's underslung SUU-23 gunpod tore apart Diep's left wing, and the Vietnamese pilot ejected. Bui Van Suu and Le Hai also made gun attacks on Squier's flight, but neither got any hits, and Le Hai had to fly for his life as more Falcons were shot off at him. He evaded the missiles just in time to get shot at by his own antiaircraft batteries near Hanoi, but made it back, as did Suu.

The busy day's air activity concluded with two more MiG-21s attempting to intercept the afternoon strike. One of them, Ha Van Chuc, twice attacked the F-105 force but had to break off both times, jumped by F-4s the first time and by Thuds the second. He finally got off a shot near Tam Dao Mountain, and thought he had brought down a F-105. Chuc's bad luck held, however: except for Bean's aircraft earlier in the day, no F-105s were lost on 3 January.

The 3 January fight once more confirmed to the Americans that the VPAF was still present in some numbers and would continue to be aggressive in the new year. Interestingly enough for historians, this is one of the few air battles of the Vietnam War that can be completely reconstructed from the accounts of both sides. Neither did as well as they had thought: the Vietnamese claimed four kills for the day, but only Nguyen Dang Kinh's is confirmed; the Americans claimed two, but only Bogoslofski's victory has borne out. Squier and Muldoon are still listed by the USAF as MiG killers, but this must be

disallowed as Chao made it back to Gia Lam; his after-action account otherwise squares with those of the Americans'.<sup>164</sup>

A F-105F Wild Weasel fell to a MiG-17 on 5 January; the attack, which resulted in the deaths of the crew (Major James Hartney and Captain Samuel Fantle), is not mentioned in VPAF records. As it occurred in the Kep area, it is close enough to the Chinese border that the possibility of the MiG-17 being Chinese cannot be discounted.<sup>165</sup>

Poor weather kept air activity over the North at a much lower tempo than the last months of 1967, but 14 January saw the VPAF's efforts to down one of the "Pesky Planes," as the Vietnamese referred to the EB-66s as, finally pay off. While another flight of MiG-21s decoyed off the F-4 escort, Nguyen Dang Kinh and Dong Van Song dashed in to attack the EB-66, which was acting as standoff jamming support for a strike on Yen Bai airstrip. Either Kinh or Song struck the converted bomber in the port engine with a K-13. The EB-66's pilot, Major Pollard Mercer, tried to limp back to Thailand, but the aircraft began to break up before he reached the Laotian border and the crew ejected. One of the "Jolly Green" rescue helicopters was lost and another damaged attempting to rescue the crew, but only Mercer and two others were brought out of North Vietnam; Mercer died of injuries sustained in the ejection a few days later, and the remainder of the crew were captured. It was the second EB-66 claimed by Kinh, who would go on to claim three such aircraft during the war, but only the aircraft on 14 January is admitted by American sources. The USAF had also lost a F-105 on the Yen Bai attack, when Major Stanley Horne was shot down and killed in his Thud by a MiG-21. The VPAF recorded no such kill, but the US-Russia Joint Commission for POW/MIA records later revealed that the MiG-

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<sup>164</sup> Toperczer, MiG-21 Units, pp. 18-20; MiG-17 Units, p. 50; Hanak, p. 75.

<sup>165</sup> Toperczer, MiG-21 Units, p. 20; Hobson, p. 131.

21 had apparently been flown by a North Korean pilot, who misidentified the aircraft as a F-4.<sup>166</sup> The VPAF came close to scoring another significant victory a few days later when a US Navy EC-121 detected MiG-21s coming after the radar aircraft as it left its patrol station over Tonkin Gulf. The MiGs broke off the engagement as they headed out over water.<sup>167</sup>

18 January saw the next large-scale air combat as a small airstrike was laid on for the Bac Giang thermal power plant. In this case, only one of the planned two flights of F-4 escorts entered North Vietnam, as the other flight had to abort due to mechanical problems. The F-4 strike aircraft were carrying Walleye guided bombs this time, one of the first precision-guided strikes made by the USAF. As the flight lined up for the Walleye drop, the fourth aircraft's pilot sighted four MiG-17s climbing towards them. He radioed a warning, dropped his ordnance, and turned to attack. The two lead aircraft jettisoned their ordnance as Lieutenant Robert Jones, the WSO for Captain Robert Hinckley in the second strike F-4, called out, "They're shooting!" Their F-4 caught fire moments later and flew into the ground.

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<sup>166</sup> Hobson, p. 133; Toperczer, MiG-21 Units, p. 20; Zampini, "Russian Pilots."

<sup>167</sup> Elward and Davies, F-4 Phantom II MiG Killers, 1965-70, p. 58.

The lead F-4, crewed by Major Kenneth Simonet and Lieutenant Wayne Smith climbed away as their wingman went down. Simonet spotted a third MiG-17 coming in from the left side, reversed his turn, and fired an AIM-4. The MiG was hit and crashed, just as Simonet also came under attack from the fourth MiG-17. The F-4 was hit and Simonet immediately began making a run for the Gulf of Tonkin, but when fire was observed, both men knew it was time to eject before the aircraft exploded. They did so, and would not find out that they had been awarded a MiG kill until after their release in 1973. About the only consolation they derived from being captured was to find out that their wingman crew, Jones and Hinckley, had managed to eject after all. Once more, VPAF records do not record the shooting down of the two F-4s, so the pilots were likely not Vietnamese.<sup>168</sup>

#### *The Tet Offensive and the February Air Battles*

Two days after the 18 January fight, the siege of Khe Sanh began. While Rolling Thunder airstrikes continued, it was at a reduced rate as American airpower was devoted to defending the beleaguered Marine garrison. This diversion of resources increased even more after the Tet Offensive opened on 29 January.

About the same time as the beginning of Tet, the VPAF began considering expanding its patrol zones. Since 1966, the VPAF had wisely restricted its movements to the Hanoi-Haiphong areas, but with more available pilots and aircraft, and the lessened American pressure in the north, the VPAF high command sensed an opportunity. The airfield at Tho Xuan, near Thanh Hoa, was ordered refurbished, to boost the VPAF's ability to fly sorties into the North Vietnamese panhandle and into Laos, where the American tanker, electronic warfare, and airborne early warning aircraft flew unmolested. The USAF had already been flying escort missions into Laos, this job devoted to Convair F-102A Delta Daggers, aircraft designed to defend the continental United States from Soviet bombers coming in over the North Pole. The F-102s flew from Udorn Rachathani in Thailand and were instructed not to cross the border

into North Vietnam. On 3 February, one such escort flight came under attack on the Laotian side of the border.

The two F-102s were returning from an EB-66 escort mission when suddenly a MiG-21 appeared and fired off one or two missiles. The F-102s, flown by Major A.L. Lomax and Lieutenant Wallace Wiggins, evaded and the MiG flew off. Wiggins reported that he thought he had been hit; Lomax took a look and saw a K-13 Atoll imbedded in the tailpipe of Wiggins' aircraft. They were heading for home when two more MiG-21s attacked. Lomax turned and fired off three Falcons at the MiGs, which scattered them. When he looked back for Wiggins, the other F-102 had disappeared, leaving a fireball. Either one of the MiGs had managed to get a shot off, or the K-13 had finally detonated. Wiggins was killed, the only F-102 pilot shot down by a MiG during the war. Nguyen Van Coc was credited with the kill, his seventh.<sup>169</sup> Not long afterwards, a MiG-21 got within 25 miles of an EB-66 orbiting over northern Laos before it was run off.<sup>170</sup>

The day after Lieutenant Wiggins was killed, the VPAF struck again—but this time not without loss. The USAF sent a small strike package of F-105s to a barracks near Thai Nguyen; the VPAF scrambled two MiG-21s from Noi Bai, now repaired from the last strike to hit it. They were immediately detected by Red Crown in the Gulf, who warned the two flights of F-4D MiGCAP. Red Crown continued to give vectors to the aircraft until one of the F-4 crews, Captain Robert Hill and Lieutenant Bruce Huneke, spotted it. The MiGCAP turned to attack, but lost sight of the MiGs in the undercast. The MiG pilots had no such troubles, and as the F-4s reacquired the MiGs visually, Captain Carl Lassiter's F-105 was hit by a K-13. Lassiter ejected and was captured.

Hill was too late to save Lassiter, but he dropped in behind the victorious MiG's wingman. He opened fire with the gunpod, but could not hit, so he switched to AIM-4s. He was not getting a good lock from the missile, but fired two anyway; to his surprise, one hit, but as had happened to Luu Huy

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<sup>168</sup> Hanak, pp. 75-76; Hobson, p. 134.

<sup>169</sup> Hobson, p. 135; Toperczer, MiG-21 Units, p. 20. The tail of Wiggins' F-102 is on display at the VPAF museum in Hanoi.

<sup>170</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers, 1965-70, p. 58.



Chao the month before, the MiG kept flying. Hill then backed off a little and fired three Sparrows, one of which possibly hit, as the MiG exploded soon thereafter, blowing its tail off. Hill successfully evaded the other MiG-21's attempt to shoot him down, and returned home safely. Again, VPAF records do not record any kills on 5 February.<sup>171</sup>

The engagement of 5 February started a brief run by the 8<sup>th</sup> TFW not seen since the halcyon days of Robin Olds. This was the result of three factors: coordination among the College Eye EC-121s over Laos, Red Crown in the Gulf, and the MiGCAP F-4s was improving;; overconfidence on the part of VPAF pilots; and the adoption of new tactics hammered out at wing-level conferences in Thailand, beginning in mid-1967.<sup>172</sup> The next day, two MiG-21s attacked the MiGCAP as it escorted the strike force away from the target. The four F-4Ds turned into the attack, and the MiGs split up into a classic defensive break, one going high, the other low. Apparently, the high MiG either never received an order to attack from his GCI, or flew home; in any case, the low MiG-21, the flight leader, was left facing four F-4s alone. He managed to evade several Sparrow shots either by skill or because of faulty missiles, but the Vietnamese's luck ran out when the fourth F-4 in the flight, piloted by Captain Robert Boles and Lieutenant Robert Bautista, took their turn to fire. As was excruciatingly common with the Sparrow, the first missile simply did not leave the aircraft, but the second did, destroying the MiG just as the pilot "kicked" his tail around to see what the F-4s behind him were doing.

Six days later, the 8<sup>th</sup> scored again. The target this time was Kep airfield, but bad weather forced the strike to divert to the Cao Nung rail yard. Once the F-105s were clear, the two MiGCAP flights returned to look for MiGs, and soon found four MiG-21s. One of the F-4s, flown by Lieutenant Colonel Alfred Lang, Jr., and Lieutenant Randy Moss, locked onto a MiG at 22 miles. Had there been no Rules of Engagement, Lang could have fired immediately, but ROE required that he identify his target. Colonel Robert Spencer, flying with Lieutenant Richard Cahill, took up position supporting Lang. At six miles, Lang identified the contact as a MiG-21 and fired two Sparrows, Spencer firing

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<sup>171</sup> Hanak, pp. 76-77.

<sup>172</sup> These tactics marked the beginning of the Red River Valley Fighter Pilots' Association.

two as well a few seconds later. Lang had no trouble with his Sparrows, as both detonated within a few feet of the MiG-21. The MiG-21 began to tumble and break up. Spencer had less luck: one Sparrow detonated prematurely, but the other guided and appeared to hit; his target abruptly pitched upwards and also went into an uncontrollable spin. When Seventh Air Force evaluated the claims, they credited Lang and Moss with one MiG-21, but denied Spencer and Cahill theirs.<sup>173</sup> According to the files of the US/Russia Joint Commission, these MiGs were apparently piloted by North Koreans. In these files, it was reported that the MiGs shot down one of the F-4s (no F-4s were lost in Vietnam on this date) before being shot down himself. The report then states that the pilot was gunned down in his parachute by the Americans. While not beyond the realm of possibility (the Wolfpack was regularly carrying gunpods by this time), this is highly doubtful: as brutal as Vietnam got, pilots on both sides still refrained from engaging in such heinous acts.<sup>174</sup>

Valentine's Day saw another large airstrike laid on by the USAF, aimed once more at the Paul Doumer bridge in downtown Hanoi, and Noi Bai airfield. (Noi Bai had been struck on 8 February as well.) The USAF experimented with a mix of weaponry on 14 February, arming one flight with the standard mix of Sparrows and Sidewinders as "fast" CAP, designed to take on the MiG-21s. The other "slow" CAP flight used what had become commonplace in 1968: Sparrows, Falcons, and the centerline gunpod. These two flights protected two F-105 Iron Hand flights and one F-4 strike flight, the F-4s being once more from the 8<sup>th</sup> TFW.

As they crossed the border in North Vietnam, both College Eye and Red Crown began giving threat warnings to the strike force: the VPAF had scrambled their by-now familiar mix of four MiG-17s operating at low level and two MiG-21s at high altitudes. The MiG-21s worked their way towards the Thuds, evaded the F-4s, and made one attack that damaged a F-105. One Iron Hand unit turned back for Thailand, while the rest of the force pressed the attack. A few minutes later, the "slow" CAP flight spotted the four MiG-17s, orbiting in the "wagon wheel" Lufbery circle. The F-4s climbed, then rolled

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<sup>173</sup> Hanak, p. 77.

<sup>174</sup> Zampini, "NK Pilots."

in and dived through the wheel, faster than the Vietnamese pilots could react. The first two F-4s were not able to lock on with their unreliable Falcons, but as one MiG pulled out of the circle to attack them, it gave the third F-4, crewed by Major Rex Howerton and Lieutenant Ted Voight, an opportunity. Howerton fired a Falcon which missed, then closed in with the gunpod. The twenty millimeter shells tore off most of the tail and one wing, and the MiG went down. As the first flight climbed away from the MiG circle, the “fast” CAP made its run. The lead aircraft of this flight, piloted by Colonel David Williams, Jr., and Lieutenant James Feighny, Jr., roared in at Mach 1.2, fired a Sparrow, and blew the tail off another MiG-17.<sup>175</sup> Coordination and execution had been excellent by the Americans on this mission; the radar vectors given by the airborne EC-121 and the shipborne Red Crown told the pilots exactly where to find their targets.

February 1968 ended with the VPAF’s last aerial victory against the USAF for almost the next two years. As a 8<sup>th</sup> TFW MiGCAP was egressing North Vietnam on 23 February, it came under attack by at least two MiG-21s. One hit the F-4D of Major Laird Gutterson and Lieutenant Myron Donald with a K-13. The F-4 was badly hit and burning, but Gutterson made a try for the coast; when the aircraft began to come apart just short of the Gulf of Tonkin, the crew was forced to bail out near the town of Hon Gai, to be imprisoned in the Hanoi Hilton until 1973.<sup>176</sup> The VPAF does not list a claim on the 23<sup>rd</sup>, so the pilot may have been a North Korean.

*The Bombing Halt Below the 20<sup>th</sup> Parallel, March-April 1968*

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<sup>175</sup> Hanak, pp. 78-79.

<sup>176</sup> Hobson, p. 138. Ironically enough, Gutterson had been a teacher at the Air University at Maxwell AFB, Alabama, and had been one of the men responsible for drawing up the Code of Conduct for American POWs, adopted after the Korean War POW experience.

March began with the VPAF claiming another EB-66, once more by Nguyen Dang Kinh and Nguyen Duc Thuan, on 3 March. If they indeed attacked an EB-66, the two pilots must have only damaged it, because the only aircraft lost on 3 March was an A-37 Dragonfly in South Vietnam.<sup>177</sup>

Kinh and Thuan's spurious EB-66 claim proved to be the only such claim by either side in March or April. The Tet Offensive and the siege of Khe Sanh were gradually coming to an end, while the bitter fighting in Hue was also entering its final phase. Tet was shaping up to be a tremendous American and South Vietnamese victory, resulting in the virtual destruction of the Viet Cong, the failure of Vo Nguyen Giap's strategy to force a second Dien Bien Phu at Khe Sanh (despite Giap's later denial of such a strategy), and the failure to ignite a popular uprising against the Saigon government. Nonetheless, the often hysterical reports by the American news media and the shock of the scale of the Tet Offensive, especially at a time when General Westmoreland had been speaking of "the light at the end of the tunnel," caused popular support for the Vietnam War to lessen considerably in the United States. The antiwar movement gained considerable ground, and even those who still supported the war began to call for bringing American troops home. Sensing this evaporation of popular support, President Johnson ordered all bombing north of the 20<sup>th</sup> Parallel halted on 31 March and announced he would not be running for reelection. Possibly as a further inducement to North Vietnam to resume peace talks in Paris, the bomb line was moved even further south to the 19<sup>th</sup> Parallel on 2 April.<sup>178</sup> The announcement understandably brought joy to the political leadership in Hanoi and relief to the VPAF. Despite the successes of late 1967 and the fact that they had given as good as they got in early 1968, the veteran pilots were exhausted, the new ones still needed time to adjust to combat, and the Vietnamese worked around the clock to keep their bases and aircraft repaired. The monsoon weather was almost as much of an enemy as the Americans; the MiGs corroded in the moisture, and despite herculean efforts by the efficient VPAF maintenance staff, the number of operational aircraft rarely exceeded twenty or thirty.

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<sup>177</sup> Toperczer, *Air War*, p. 26; Hobson, pp. 139-140.

<sup>178</sup> Don Oberdorfer. *Tet!* (Baltimore: John Hopkins University Press, 1971), pp. 24, 37, 175, 321.

As for the pilots of the USAF and the US Navy, in the words of novelist and Wild Weasel backseater Tom Wilson, “an entirely new spirit was perceived among American fighting men, who had come to realize that they were not in the war to win.”<sup>179</sup> The USAF had been preparing to again launch the same coordinated, punishing airstrikes that had nearly finished off the VPAF a year before, once the weather cleared. Now, save for Route Packages One, Two, and a small slice of Three, the only aircraft that flew over North Vietnam would be reconnaissance aircraft, mostly unmanned BQM-134 Firebee unmanned aerial vehicles (UAVs). Having achieved one of their goals—to get the American bombing to halt—the North Vietnamese did return to Paris for peace talks, though a good deal of their time was spent arguing over the shape of the table.

Paks One through Three fell into the 4<sup>th</sup> Military District of the VPAF, and soon after the halt was announced, the VPAF’s commander-in-chief, Nguyen Van Tien, along with most of his staff, extensively toured the area to see what they could do in improving its defenses. Two antiaircraft gun battery regiments and four battalions of SAM units were deployed to the “panhandle,” and the MiG-capable fields at Tho Xuan and Vinh were made operational. Since the VPAF need no longer worry about defending the capital and the port, it could afford to redeploy some of its aircraft to defend the northern hubs of the Ho Chi Minh trail at Mu Gia and Ban Karai passes, and to project power in the heretofore ignored southern provinces. The VPAF also began planning airstrikes on the American destroyer pickets of the Seventh Fleet in the Gulf of Tonkin.

Despite the growing disillusionment of American pilots, the USAF and the US Navy were not entirely idle. In early April, two MiG-17s were flown to the newly opened base at Vinh. The pilots had barely shut down their aircraft when the USAF staged a surprise raid, temporarily putting Vinh out of action and destroying both MiGs on the ground.<sup>180</sup> As the Americans continued to bomb Vinh and the small airfield at Dong Hoi, the VPAF decided to operate out of more northerly bases for the time being.

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<sup>179</sup> Tom Wilson. Tango Uniform. (New York: Bantam Books, 1994), p. 762.

<sup>180</sup> Toperczer, MiG-17 and MiG-19 Units, p. 51. The Americans almost certainly timed the attack to catch the MiGs on the ground, as STRATA (Short Term Roadwatch and Target Acquisition) teams, made up of South Vietnamese Rangers, were operating in the area at the time. See Richard Shultz, The Secret War Against Hanoi,

Air battle was rejoined on 7 May, when four MiG-21s, flown by Dang Ngoc Ngu, Nguyen Dang Kinh, Nguyen Van Lung, and Nguyen Van Coc took off from Tho Xuan to attack an EKA-3B Skywarrior, broadly similar to the USAF's EB-66. The mission turned into a comedy of errors for both sides. Because of poor coordination with ground defenses (which were not yet used to friendly aircraft flying south of the 20<sup>th</sup> Parallel), the second element of MiG-21s (Kinh and Lung) were fired on by antiaircraft batteries. This led Ngu and Coc to drop their external tanks, thinking that the flak was being fired at American fighters. They soon identified the other two MiG-21s, and continued on, despite the fact that their patrol time was now reduced.

The MiGs had been detected by an orbiting E-1 Tracer early warning aircraft offshore, and the BARCAP F-4Bs of VF-92 sent to intercept as the EKA-3B left the area. Because of the poor weather, neither side could find the other. The Vietnamese, low on fuel, were heading for home when Coc suddenly noticed a F-4 directly in front of him. This aircraft was crewed by Lieutenant Commander E.S. Christiansen and Lieutenant (jg) W.A. Kramer, themselves low on fuel and returning to their carrier, the *Enterprise*. Coc closed in and fired off both K-13 Atolls. At least one hit and the two Americans were forced to eject. They were later rescued by friendly forces, and all four MiGs returned safely.<sup>181</sup> It was Coc's ninth and final combat kill; though he later shot down two Firebee drones, these do not count towards his final tally for the purposes of this thesis. A few months later, Coc was taken off of combat status (save for the occasional Firebee intercept) and sent to train new pilots. Not only was this a sound investment by the VPAF, as Coc's invaluable combat experience could be passed on to a new crop of MiG pilots, it was done for political reasons; both Coc and Nguyen Van Bay, who was

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(New York: HarperCollins, 1999), p. 121.

<sup>181</sup> Toperczer, *MiG-21 Units*, p. 21; Hobson, p. 148.

the first ace to be publicly admitted to by the VPAF, were considered too valuable to risk getting killed.<sup>182</sup>

Meanwhile, the US Navy had begun altering its tactics. Since the Navy theoretically had operational control over the panhandle's Route Packages, it began experimenting with clearing the air of all strike aircraft when MiGs were detected by Red Crown or the Tracers. Once the area was "sterilized," the F-4s were free to engage at beyond visual range without first identifying the target. This restored the reach of the F-4, and while it had failed due to poor weather on 7 May, it succeeded two days later.

On this day, two F-4Bs of VF-96, also off the *Enterprise*, were patrolling just offshore when the radar picket destroyer detected three MiG-21s taking off from either Noi Bai or Gia Lam. Once the area was deemed clear of friendly aircraft, the F-4s were cleared to intercept, and both sped northwards at Mach 1.2. In the lead was Captain John Heffernan of the USAF, flying an exchange tour with VF-96, and Lieutenant (jg) Frank Schumacher, while their wingman crew was Lieutenants Robert Clime and Eugene Sierras. The latter achieved a lock on one MiG-21 at twelve miles; at just below five miles, Clime fired a Sparrow, followed closely by Heffernan. Clime's AIM-7 failed to guide, but Heffernan's looked like it had hit something high in the clouds. At that point, Clime was alerted by the F-4's radar warning receiver that he was being tracked by a missile himself; he made a break for the ocean and dropped chaff (thin strips of aluminum foil designed to fool radar-guided missiles), which successfully decoyed the missile, either air or ground launched. Heffernan, for his part, had picked up a second radar contact and fired another Sparrow. This time, there was a visible fireball. Heffernan tried to engage a third contact, but his missiles failed to fire, so he headed for the ocean as well. Despite the fact that one of the three MiG-21s had disappeared from radar scopes at the same time Heffernan reported seeing the fireball, the Navy only evaluated the kill as a probable, which it is still listed as to this day. Postwar VPAF records, however, admit to the loss of a MiG-21 on this date (one of the rare occasions any losses are admitted). Later in the day, VF-92's F-4s engaged another three MiG-21s and

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<sup>182</sup> Zampini, "A Lurking Tiger,"; Wetterhahn, p. 51.

fired four Sparrows. Again, one probable and another possible claim were registered, but the VPAF admits to only the loss of Heffernan's kill.<sup>183</sup>

Though the USAF and US Navy continued to conduct airstrikes on targets in the panhandle, no further air combat occurred for over a month. The VPAF largely abandoned attempts to attack the Seventh Fleet, after three MiGs were lost to ship-launched Talos SAMs from the guided missile cruisers USS *Chicago* and *Long Beach*; one (possibly two) MiG-21s were destroyed by a Talos at the incredible range of 110 miles from the cruisers. This did not keep the VPAF from contesting airstrikes over land. On 14 June, two MiG-17s flown by Luu Huy Chao and Le Hai took off from Gia Lam to intercept a raid on Trang Mao, not far from Vinh. Their GCI controller warned them of six F-4s in the area, above and to the right. As the MiG pilots climbed to attack, Hai noticed the F-4s turning towards them, and one of them launched a missile. Both Vietnamese jettisoned their drop tanks and evaded the missile; Hai engaged one F-4 while Chao dropped back to cover him. Hai fired his cannon at one F-4 and saw it catch fire, then turned away to cover Chao. The two MiGs had, however, gotten themselves in the middle of six Phantoms, and the result was mad confusion as Hai and Chao attempted to fire their cannon as the Americans tried to either get enough room to use their Sidewinders, or decoy the MiGs out past the coast where the missile cruisers could engage them. Finally, the Americans disengaged, and the two Vietnamese landed at Tho Xuan, claiming two F-4s—Hai thought he had seen his target crash into the Gulf, while Chao reported that his kill had disintegrated. Neither were correct: no American aircraft were lost on 14 June.<sup>184</sup>

The MiG-21s of the 921<sup>st</sup> Fighter Regiment had better luck two days later. On this occasion, two MiG-21s were patrolling near Do Luong, northwest of Vinh, when GCI warned them of approaching Navy Phantoms—two new F-4Js from USS *America*'s VF-102. The two MiG pilots, Dinh Ton and Nguyen Tien Sam, met the Americans head on, dodged four Sparrows, and then were surprised to see the F-4s suddenly turn and dive away. Unknown to the Vietnamese, the F-4s were close to the 19<sup>th</sup>

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<sup>183</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1965-70, pp. 60-63.

<sup>184</sup> Toperczer, MiG-17 and MiG-19 Units, pp. 51-52.



Parallel, and to cross that line, even in the heat of combat, was expressly forbidden by orders from the White House. The F-4s attempted to outdistance the MiGs, but Ton closed in and fired off an Atoll. The F-4 of Commander Walter Wilber (commanding officer of VF-102) and his backseater, Lieutenant Bernard Rupinski, was hit and began to come apart; Wilber's radio was out and he failed to hear a warning from his wingman. Wilber ejected and was badly injured, then captured, but Rupinski never made it out of the aircraft. The MiGs returned to Tho Xuan safely.<sup>185</sup> On 19 June, Le Hai registered a claim for a F-8, but no American aircraft were lost anywhere in Southeast Asia on that date.

The US Navy struck back on 26 June. On this date, the radar pickets vectored three VF-51 F-8Hs off of the *Bon Homme Richard* against two MiG-21s. The two flights sighted each other simultaneously, dropped their external tanks, and attacked—the MiGs from above, the F-8s from below. Commander Lowell “Moose” Meyers, a combat veteran who had fought MiGs before, brought that experience to the fight: as one MiG-21 shot over his F-8, Meyers was already turning, staying one step ahead of his opponent. The result was a single Sidewinder shot that blew off the MiG-21's tail. The pilot ejected, and the remaining MiG-21 wisely fled for home at full speed. The time of the engagement had been 45 seconds from first sight until the MiG's burning remains struck the ground. It was the first of five F-8 kills for the summer of 1968.

Another veteran Crusader pilot, Lieutenant Commander John Nichols III of VF-191, from USS *Ticonderoga*, scored the second F-8 victory on 9 July. Like Meyers, Nichols already had over a hundred missions over North Vietnam, and had dueled with MiGs on three separate occasions. Nichols, flying a F-8E, escorted a RF-8 Crusader, headed towards Vinh from the west. As the RF-8 lined up for its photo pass, Nichols spotted a camouflaged MiG-17 coming in from the left side, and radioed a warning. The RF-8 pilot immediately went into a six-G split-S, something the MiG-17 could not duplicate at low altitudes. The VPAF pilot tried, which allowed Nichols to come in and fire off a Sidewinder. It exploded just short of the MiG, but the Vietnamese panicked. Instead of continuing his left break, which would have allowed the MiG to get away from Nichols' F-8, the pilot turned right and

lit his afterburner, and became the perfect target for Nichols' second Sidewinder. The tough MiG-17 survived the missile hit and began to limp for Vinh. Nichols stayed in position by opening his speedbrakes, and finished off the MiG with the F-8's cannon. The Vietnamese pilot was not able to bail out before the wreckage spiraled into the ground. VPAF postwar records blamed the loss of both the MiG-21 on 26 June and 9 July on poor coordination between the GCI and the pilots—exacerbated by American jamming—and the MiG pilots' lack of experience. The Vietnamese opposing Nichols had 450 hours total in the air; Nichols had 2700 hours in the F-8 alone.<sup>186</sup>

Nichols, shortly after he landed, learned who the MiG pilot was—a 26-year old Vietnamese whose father was a schoolteacher in Hanoi. Nichols later recounted:

“We try to be tigers and yet you do go to bed at night and think about something like this. You kill a lot of people with bombs, but you never know them. This man had a name. I thought about him and I said, ‘Damn, I wonder if I’d have liked him? I wonder if he always wanted to fly airplanes like I did? I wonder if he made model airplanes?’ He just loved flying more than anything in the world and thought he was a great fighter pilot. I wished he would have gotten out of the airplane. I wished I’d have killed his airplane but seen a parachute. I wished I could tell his parents that I really didn’t mean to kill him. It’s always a jolt to a pilot to think that there is a human being in the airplane. At first, it’s just an airplane that you’re really striving to destroy, like you did in peacetime, but then there’s a big fireball and it’s gone, and it hits the ground and then it suddenly dawns on you that there was a human being in there that was just incinerated.”<sup>187</sup>

The Navy continued its “hot run” the next day, when four MiG-21s were detected heading south from Tho Xuan to attack a Navy strike on targets near Vinh. The strike immediately headed away from the area and cleared in two VF-33 F-4Js off USS *America*; the two aircraft were crewed by Major Charlie Wilson (another USAF exchange pilot) and Lieutenant (jg) William Williams, and Lieutenants Roy Cash, Jr. (nephew of singer Johnny Cash) and Joseph Kain, Jr. Cash and Wilson coordinated well with Red Crown, setting up to make their attack from the west and out of the sun, where the MiGs would not expect them. The F-4Js they flew were new, and among the improvements over the older F-4B were improved engines that had largely mitigated the smoke problem, denying an advantage that the MiGs had enjoyed for some time. Finally, the EKA-3Bs were jamming the voice links between the GCI

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<sup>185</sup> Toperczer, *MiG-21 Units*, p. 22; Elward and Davies, *US Navy F-4 Phantom II MiG Killers 1965-70*, p. 63.

<sup>186</sup> Tillman, pp. 156-160.

controllers and the VPAF pilots. Cash and Wilson detected the MiGs at 32 miles, and locked on with Sparrows at twelve miles, firing as the MiGs, still unaware they were being hunted, made a left turn to return home. The left turn threw off the Sparrows, which exploded harmlessly.

The MiGs saw the Phantoms now, and broke towards the Americans. Cash fired a hasty Sidewinder shot that missed, but it apparently frightened one of the MiG pilots, who dove away from the fight and fled. Cash and Wilson were going into a high-G barrel roll to go after the remaining MiG when both Wilson and Red Crown detected two more MiG-21s low and to the west. Cash fired off another Sidewinder, and this time hit; the VPAF pilot, taking no chances, ejected at the instant the Sidewinder impacted his aircraft. One of the low MiG-21s fired a missile at Cash, but was far out of range—though Wilson advised Cash to “break left...I mean right!” The other two MiG-21s turned away as the F-4s turned towards them, so the Americans reversed their turn and returned to their carrier.<sup>188</sup> By securing all the advantages possible before the fight even began, Cash and Wilson had observed one of the rules that Oswald Boelcke had laid down fifty years before, and it paid off. For the Navy, it was the last Phantom kill scored during the Rolling Thunder phase of the war.

Three weeks later, Lieutenant Commander Guy Cane, executive officer of VF-53 (once more from the *Bon Homme Richard*), scored the third Crusader kill of the summer when he led four F-8Es on TARCAP against four MiG-17s. The end result of a swirling dogfight in the clouds was that Cane got off a Sidewinder shot on one of the MiGs. Originally, Cane thought he had missed, until a large piece of the MiG’s starboard wing came off. The MiG-17 spiraled into the ground.

A fight over Do Luong, on the Song Ca River northwest of Vinh, developed when three MiG-21s of the 921<sup>st</sup> Fighter Regiment, flown by Nguyen Dang Kinh, Nguyen Mao, and Nguyen Hong Nhi jumped four F-8s of VF-53 on TARCAP duties. Kinh got in behind one F-8 but missed with a K-13. Nhi attacked two Crusaders and fired off two missiles—one of which his target dodged; the other possibly hit the F-8. Nhi claimed a kill, but no F-8s were lost on 1 August.

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<sup>187</sup> Sherwood, p. 202.

<sup>188</sup> Elward and Davies, US Navy Phantom II MiG Killers 1965-70, pp. 64-66.

Nhi found himself in trouble as the F-8's wingman arrived, firing his cannon. The Vietnamese pilot pushed his engine throttle forward and attempted to climb, but he nearly stalled—his throttle was sticking, and he had pushed the MiG-21 beyond its flight envelope. He managed to avoid being shot down by the persistent American, and then out-turned the F-8. He lined up to fire off his remaining two K-13s, but the missiles refused to fire. At this point, two F-8s from VF-51 arrived, and Nhi tried to disengage. One F-8, piloted by Lieutenant George Hise of VF-53 (who was either Nhi's original target—Hise reported a missile being fired wide of him—or the one whom Nhi had out-turned), came in on Nhi's left rear quarter, while Lieutenant Norman McCoy of VF-51 attacked from the right. Sandwiched, there was not much Nhi could do; McCoy shot him down. Nhi survived the ejection and returned to Noi Bai three days later.

The fifth and last F-8 kill of 1968, and the last American aerial victory of Rolling Thunder, came on 19 August, two days after an embarrassing incident in which a VF-142 F-4J accidentally shot down his wingman. When the radar pickets detected two MiG-21s heading south to attack a strike, the USS *Intrepid* launched two F-8Cs of VF-111, the famous "Sundowners." Because of their impressive record during World War II against the Japanese, VF-111 painted their F-8s (and later their F-4s) with gaudy orange setting sun motifs on the tail and leering sharkmouths around the nose. Lieutenant Anthony Nargi, leading the section, soon spotted the MiGs, which looped away in an attempt to disengage. Like Nguyen Hong Nhi a few weeks earlier, the VPAF section leader, unidentified in postwar records, suffered an electrical failure. Rather than attempt to fight, he turned for home. Nargi pursued, however, and shot down the lead MiG-21 with a Sidewinder. The pilot ejected as the MiG turned into a fireball. Nargi and his wingman, Lieutenant (jg) Alexander Rucker, then attacked the remaining MiG-21, but that pilot managed to evade two more Sidewinders and escaped. Also unidentified, the surviving VPAF pilot claimed a F-8 shot down, but both Nargi and Rucker returned safely to the *Intrepid*.<sup>189</sup> (A F-8H of VF-24, off USS *Hancock*, was lost on 19 August, but in a training

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<sup>189</sup> Tillman, pp. 161-162; Toperczer, *MiG-21 Units*, pp. 22-23; Hobson, pp. 158-160. Interestingly enough, Nargi's kill came on his 111<sup>th</sup> mission while flying with VF-111, which flew off of the *Intrepid*—side number

accident well to the southwest of Yankee Station, the Seventh Fleet's sailing area for strikes into North Vietnam.) The VPAF was to claim one more kill before the end of 1968, on 26 October when a MiG-21 reported shooting down a F-4. No F-4s were reported lost on this date anywhere in Southeast Asia; the only plane lost by the United States on this date was an A-4 over central South Vietnam.

### *Rolling Thunder Ends*

On 31 October, President Johnson announced an end to all bombing of North Vietnam, even of targets south of the 19<sup>th</sup> Parallel. In doing so, Johnson hoped that it would both spur further progress in the Paris peace negotiations and give a political boost to the Democrat candidate for the Presidency, former Vice President Hubert Humphrey. Neither was successful: Humphrey was defeated by Richard Nixon, and the peace accords remained stalled. Hanoi, correctly, felt that there was no real reason to begin serious negotiations: Johnson had given them what they wanted, a halt to bombing. By this time, the defenses of North Vietnam consisted of over eight thousand antiaircraft guns, four hundred radar sets integrated in a now-experienced air defense network, forty confirmed SAM sites, and about 150 MiG-17s and MiG-21s.<sup>190</sup>

Rolling Thunder had been a costly failure for the United States. The campaign had accomplished little from a military standpoint, as supplies heading south over the Ho Chi Minh trail were not badly disrupted. Since Johnson and McNamara had refused to mine Haiphong harbor or target the Hanoi leadership, the country was still able to function, and supplies flowed into North Vietnam freely. Over one million sorties had been flown, 500,000 tons of munitions dropped, and 671 pilots killed, with an additional 702 either missing in action or imprisoned in brutal conditions in North Vietnam. The one

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CV-11.

<sup>190</sup> Hobson, p. 166.

known accomplishment of Rolling Thunder had been the death of up to 35,000 North Vietnamese military personnel and civilians, which was no accomplishment at all.

### *So Far, Not Good*

While the bombing halt was probably a strategic mistake, as it allowed North Vietnam to recover fully from Rolling Thunder and build up for a major offensive scheduled for 1970, it provided a chance for both sides' aviation commands to take a figurative step back and figure out what had gone right and what had gone wrong. For the US Air Force and the US Navy's Naval Aviation community, the answer was simply that very little had gone right and very much had gone wrong.

Both the Air Force and the Navy were acutely aware that the war effort to this point was disappointing. Leaving out the failure of Rolling Thunder to achieve anything worthwhile, the results of the air war were stunning, not to mention disconcerting. USAF pilots and Navy aviators had both been taught that they were "kings of the sky," that the superior technology embodied in the F-4 Phantom II would render obsolete the World War II and Korea-style dogfight, that their missiles would destroy enemy aircraft before they got too close. However, the truth had been that the old style dogfight, or "furball" as the pilots called it, was the norm rather than the exception, that the F-4 was proving itself to be barely capable of acting in the air superiority role, and that the missiles hardly worked, even in successful engagements. Instead of wiping the North Vietnamese from the sky, the Americans were lucky to keep parity with them. While there had been stunning victories—the spring of 1967 that had nearly finished the VPAF as an effective fighting force—they had been followed by equally stunning defeats. Indeed, in the winters of 1966 and 1967, the kill ratio had actually fallen *below* parity. North Vietnam, a small country with a comparative handful of somewhat obsolete fighters, was holding off the world's most technologically advanced superpower. Some blame could be leveled on the Rules of Engagement, but many generals and admirals admitted that not everything was McNamara's fault. Simply put, the main reason that American pilots were even achieving a paltry 2 to 1 kill ratio or parity most of the time was because the North Vietnamese pilots were even more poorly trained than the Americans in air combat tactics.

Clearly, the deductions of the late 1950s and early 1960s were false. The era of the dogfight was not over, and world events beyond Vietnam brought that point home. On 5 June 1967, the beginning of the Six-Day War, the Israeli Air Force had literally decimated three Arab air forces in the space of 24 hours. The Israelis wrecked no less than 21 air bases, and the few Arab aircraft that did get into the air were soon shot down. It was an object lesson on how to destroy an opposing air force, and the Israelis were using French Dassault Mirage IIIs and Super Mysteres to do it, neither of which were close to the F-4 in technology.<sup>191</sup> The brief Indo-Pakistani War of 1965 had also seen its share of air battles, all of them fought at close range between gun and Sidewinder equipped Pakistani F-86 Sabres and Indian Gnats and Hunters.

Both services agreed that the poor missiles were part of the problem. The AIM-7 Sparrow had a failure rate of 63 percent, and even if the missile was launched within its design parameters, fully 29 percent failed to hit their targets. The Sparrow had been designed to knock down bombers, not maneuvering fighters; it took five seconds to fire after lock-on had been achieved, in an air combat environment where split-second timing was paramount; it left a thick trail of white smoke, which not only made it easy to see and avoid, but also gave away the shooter's position; it was vulnerable to the tropical conditions; it could not be fully utilized in a beyond visual range environment because of ROE. The AIM-9 Sidewinder was better, but it still failed 56 percent of the time, and missed between 28 percent (early AIM-9B) and 13 percent (later AIM-9D) of the time when launched within its design parameters. It was small and hard to avoid, but it could be easily fooled by the heat of the earth (especially the reflection of the sun in rice paddies) or the sun, and it had a relatively small warhead. The AIM-4 Falcon was even worse, as it relied on liquid nitrogen to cool the seeker head, taking too much time, and if it did hit, it did not always bring down the target. The knowledge that the North Vietnamese had their share of headaches and failures with their K-5 Akalis and K-13 Atolls was small comfort to the Americans.

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<sup>191</sup> Michael Oren, Six Days of War: June 1967 and the Making of the Modern Middle East. (San Francisco: Presidio Press, 2002), pp. 170-77.

The USAF decided that the lack of progress in the air war was best answered by the application of new technology. The F-105 Thunderchief force, which had taken well over 50 percent casualties, was gradually withdrawn from combat, with the exception of specialized F-105G Wild Weasel variants. The venerable Thuds were replaced by F-4s, a process that had already begun in the later stages of Rolling Thunder, and the all-weather strike bomber, the F-111 Aardvark. In the fighter role, the F-4E version of the Phantom was introduced. The E model had upgraded engines and most importantly, an internal M61A1 Vulcan twenty millimeter gatling cannon, contained in an underslung fairing in the nose. The gun was ably complimented by a radar-ranging gunsight that made it very accurate; there would be no more “slinging lead around” as had been the case with the SUU-23 gunpod. An improved version of the AIM-9B/D series, the AIM-9E, was also introduced, and attempts were made to improve the Sparrow as well in the AIM-7E-2 series. The AIM-4 was relegated back to Air Defense Command. However, the USAF continued to emphasize the air-to-ground role, developing a host of precision-guided munitions such as laser and electro-optical guided bombs, and neglect the air defense role. What little air-to-air training that existed within the USAF was *decreased* in order to train crews how to use the new bombs effectively. While this made sense if the USAF never intended to return to the skies over North Vietnam, it seemed to ignore any possibility that it might. Future ace Charles deBellevue called the training “dog shit,” and said that the first time he engaged in dissimilar combat air training—that is, with a fighter besides another F-4--was when a VPAF MiG-21 was trying to kill him.<sup>192</sup>

#### *The Navy Takes Three Paths: The Ault Report, Top Gun, and Have Idea*

If the USAF further deemphasized realistic air combat training, the Navy was under no such illusions. Naval aviation, since its destruction of the Imperial Japanese Naval Air Force during World War II, had prided itself on maintaining a high state of readiness and skill, especially in air combat. Despite being largely relegated to close air support, Navy aviators in Korea had still racked up an impressive



record flying against Soviet, Chinese, and North Korean pilots, often in MiG-15s that outclassed the Navy's straight-wing F2H Banshees and F9F Panthers. Yet the Navy too had gravitated towards missiles and degraded its air combat training; the F-4B Phantom II that had shouldered much of the fighter mission during Rolling Thunder was designed for the fleet defense mission against Soviet bombers. The F-8 Crusader was, of course, an exception—a pure fighter armed with guns and missiles—but it was on its way out, being rapidly replaced by new F-4Js. The Fleet Air Gunnery Unit, which had taught air-to-air gunnery skills to F-8 pilots, had been deactivated before the Vietnam War. Nonetheless, F-8 pilots, without the “crutch” of the BVR Sparrow, had never stopped practicing their air combat skills, even if it was somewhat extralegal and involved dueling another F-8. The result was that the F-8 pilots sustained a six to one kill ratio, nearly twice that of the F-4 crews.<sup>193</sup> The Navy decided that the problem was not so much with technology, but with training.

In March 1968, the Navy commissioned Captain Frank Ault, who had flown combat over North Vietnam, to find out what had gone wrong in regards to air combat, and gave him broad powers to leave no stone unturned. Ault, along with a handpicked staff of two veteran officers and three civilian specialists, began poring over reports and studies, namely the joint USAF-US Navy “Red Baron” combat reports. Ault's committee also made inspections of the missiles from the factory to the fleet, and talked to pilots about how they were employed. The committee's results were published on 1 January 1969 as the weighty *Air-to-Air Missile System Capability Review*, usually called just the “Ault Report.” The report was far from complimentary, outlining the trouble with the missiles, the lack of realistic combat training, emphasis on keeping accident rates low rather than teaching pilots how to survive, and many other problems that the Navy had dealt with in the past nine years. A list of 232 recommendations was given on how to correct the problems, from improving the missiles to establishing a fighter training school that would emphasize air combat. The Ault Report sent shockwaves through the Navy community, but it did not fall on deaf ears. In fact, even before the report

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<sup>192</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers, 1965-70, pp. 69-71; Sherwood, pp. 227-228.

<sup>193</sup> Tillman, pp. 167-168.

was published, steps had been taken to improve training. This was the establishment of the Naval Fighter Weapons School (NFWS)—later to take on the now-famous nickname of Top Gun.

Any moviegoer instantly recognizes the name of Top Gun, thanks to the movie of the same name which came out in 1986, long after the Vietnam War was over. That version of Top Gun showed clean-cut, all-American, young fighter pilots ably played by Tom Cruise and Val Kilmer, engaging in a somewhat sophomoric competition for a trophy to prove the “best of the best.” Yet the real Top Gun’s origins are rather simple and it started out quite small.

Recognizing that the F-4 crews had lost their air combat skills—or, rather, had never developed them to begin with—NFWS was established as a postgraduate course of sorts within VF-121, the West Coast F-4 Replacement Air Group (RAG). The RAG’s purpose was to train new F-4 crews in day-to-day operations, including carrier landings and launches, basic weapons delivery, and the complexities of the Phantom. It was only natural that a dedicated air combat period be added to the syllabus all RAG pilots were required to complete. The program, in the words of a former Top Gun instructor, “demanded that students eat and sleep ACM [Air Combat Maneuvering], and associated air superiority considerations.” With the publication of the Ault Report, VF-121’s NFWS was expanded to include fighter training for all F-4 crews, not just those arriving from basic training in Pensacola. On 3 March 1969, the first official Top Gun class reported at Miramar Naval Air Station, known to its inhabitants as “Fightertown USA.”

The NFWS course consisted of four weeks of intensive training, centered around 25 missions and 75 hours of classroom work. The course, both in the air and in the books, consisted of ACM, air-to-air gunnery (with missiles, since the Navy never equipped their F-4s with guns), electronic warfare and the use of radar in aerial engagements, bomb delivery, and enemy aircraft performance. Later, the bomb delivery portion was deleted and the course extended to five weeks. Top Gun crews were selected by their peers from each fighter squadron, with the crew chosen by their skill. Once the course was completed, the crews were expected to return to their respective squadrons and pass on what they had learned, thereby diffusing the new tactics among the F-4 community as a whole. The initial cadre of

instructors was formed from high-time, veteran F-4 and F-8 pilots (some, like James Laing and John Nichols, had already fought and destroyed MiGs); in time, once their tours were up, the instructors would also return to Fleet squadrons, further disseminating their knowledge.

Initially, Top Gun had to literally beg, borrow, and steal classroom space, offices, and aircraft. The F-4s were no problem, as the students brought their own (plus a spare), but the idea was to give students dissimilar combat training. Two-seat TA-4J trainer versions of the Skyhawk were borrowed from a Miramar-based instrument flying training school, along with USAF T-38s and F-8s from the Crusader RAG squadron. The A-4 was found to be a perfect simulator for the MiG-17, while the T-38 and F-8 provided suitable substitutes for the MiG-21. The syllabus was also changed and expanded as instructors came up with new ideas, or as students improved. Predictably, accident rates rose, but the Navy's high command stood fast and kept the program going.<sup>194</sup>

As good as the A-4s and T-38s were to simulate MiGs, there was no substitute for the real thing, and here the Navy had a stroke of good luck: the appropriately codenamed "Have Idea" program run jointly by VX-4, the Navy's West Coast test squadron, and the top-secret 4477<sup>th</sup> Fighter Squadron of the USAF. Have Idea operated from the 4477th's home base at Groom Lake, the infamous "Dreamland" or "Area 51," and consisted of at least two actual MiGs—a single MiG-17 and MiG-21 each. The former was codenamed "Have Drill," and the latter "Have Doughnut." Both aircraft were on loan from the Israeli Air Force, who had acquired the MiG-17 when a pilot from Syria had accidentally landed in Israel, and the MiG-21 (an earlier MiG-21F-13) from a defecting Iraqi pilot.

Both Top Gun instructors and students were given an opportunity to fly the MiGs. Top Gun students flew sorties against the MiGs under a condition of strictest secrecy over the Nevada test ranges north of Las Vegas—the existence of the Have Idea aircraft was not declassified until the 1980s—but it gave both students and instructors a chance to evaluate the MiG types, recognize them quickly in the air, and

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<sup>194</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers, 1965-70, pp. 71-75. While the movie *Top Gun* is rife with pop culture references and Reagan-era "rah-rah," it actually portrays a fairly realistic view of the NFWS program. "Maverick" and "Goose" are shown taking classes and reviewing combat footage from the Vietnam War. A number of Vietnam veterans and Top Gun instructors flew many of the aerial scenes, and some

develop tactics to counter them. Indeed, the MiG pilots had an advantage their North Vietnamese counterparts did not have: an extensive knowledge of the F-4's weaknesses and the high degree of flight training given to naval aviators. Students quickly discovered for themselves the lessons others had learned at a high price over Hanoi and Haiphong about the MiGs' maneuverability and weaknesses. An added bonus was that, since the pilots who flew the Have Idea MiGs were better (in most cases) than the VPAF's pilots, the Top Gun students would have an easier time dealing with the latter, when and if the war resumed over North Vietnam. Former Top Gun instructor John Nash put it this way: "If it [the MiGs] had been flown by equals to the Navy pilot in Vietnam, it would have been responsible for dozens of kills. The way the US conducted—or ignored—the air war, the MiG-21, in company with the MiG-17, should have wreaked havoc on US air [units], rather than just posing a nuisance to our war."<sup>195</sup>

By 1971, the Navy's F-4 squadrons each had at least one Top Gun-qualified Phantom crew, and by 1 January 1972, Top Gun became an independent entity from VF-121, allowing instructors to devote themselves full-time to training and changing the syllabus; before, the instructors had to fly both the normal qualification courses for new F-4 crews as part of RAG training, as well as Top Gun missions. Many of these Top Gun graduates would be heard from when large scale hostilities resumed in 1972, among them Jerry Houston, Foster Teague, Ronald McKeown, Randy Cunningham, and William Driscoll.<sup>196</sup>

### *The VPAF During the Lull*

The VPAF, naturally, had neither the time, money, equipment, or inclination to set up a Top Gun-like program for their pilots. Instead, the time was spent expanding the VPAF, training its new pilots, and repairing the damage from Rolling Thunder. Because the war was still officially "on" and because of

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of them, among them Admiral T.J. Connelly and Kenneth "Viper" Pettigrew, made cameos in the movie.  
<sup>195</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1965-70, 72-75.

the danger from US Navy guided missile cruisers, the VPAF pulled its MiGs back from the panhandle to more familiar areas around Hanoi and Haiphong, though the bases south continued to be expanded.

The VPAF's new crop of pilots arriving from the Soviet Union did enjoy the advantage of being trained by pilots such as Nguyen Van Bay and Nguyen Van Coc, among others—those who had survived the leaner years of 1966 and 1967 and knew what it was like to be under fire. VPAF records are spotty on the subject, but it can be assumed that these veterans passed on the lessons they learned in much the same fashion as their American counterparts. Once the airfields were fully repaired, by about mid-1969, the VPAF began to practice flying multi-aircraft maneuvers, such as taking off and landing by squadrons. MiG-17 pilots generally upgraded to MiG-21s, while those pilots already qualified in the MiG-21 undertook training in adverse weather and especially night operations. The VPAF always assumed that the lull was just that, and that war would resume at some point with American air units. Foremost among the VPAF's concerns were the USAF's B-52s, which flew higher than antiaircraft guns could shoot, and could quite possibly strike by night, hence the emphasis on night training.<sup>197</sup>

The VPAF also received new equipment with the arrival of the Shenyang J-6 and the MiG-21MF. The former was a Chinese license-built version of the Mikoyan-Gurevich MiG-19SF "Farmer" interceptor, while the latter was an advanced version of the MiG-21PFMs that the VPAF already operated. The MF was a welcome addition to the VPAF's inventory, as it incorporated an uprated engine, improved radar, and provision for four missiles rather than the two the PFM carried. It also had provision for an underfuselage GP-9 23mm gun pack. The canopy was also changed to a two-piece, side hinging affair that made ejections safer than the forward-hinging, one piece canopy of the F-13 and PFM versions. The J-6/MiG-19 was less welcome, but it at least had better acceleration and speed than the MiG-17, even if it lacked maneuverability and had other chronic malfunctions.<sup>198</sup>

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<sup>196</sup> Sherwood, pp. 204-205.

<sup>197</sup> Toperczer, *MiG-21 Units*, pp. 23-24.

<sup>198</sup> David Donald and Jon Lake, eds., *The Encyclopedia of World Military Aircraft*. (New York: Aerospace Publishing Ltd., 2000), pp. 292-293.

With the arrival of the MiG-19 in February 1969, a third fighter regiment was formed, the 925<sup>th</sup>. This unit was equipped with a mix of MiG-17s and MiG-19s, with pilots for the former being drawn from training programs in North Vietnam, and the latter's pilots converted from MiG-21s in the Soviet Union. The 925<sup>th</sup> was based at Yen Bai, northwest of Hanoi. Expansion continued to bases at Hoa Lac, Mieu Mon, Tho Xuan, Vinh, Dong Hoi, and Anh Son, while new airstrips were opened as emergency fields at Cam Thuy, Gat, and Phu Quy. Command and control was further refined and expanded to cover nearly the entirety of North Vietnam, and, if possible, the antiaircraft defenses were further thickened. A detachment of the 921<sup>st</sup> Fighter Regiment was moved to Vinh and Anh Son to cover the panhandle.

The biggest problem the VPAF faced during the lull was keeping its aircraft and infrastructure going despite a lack of spare parts, trained technicians, and a climate hostile to aircraft. However, the USAF continued to run the occasional mission over North Vietnam via "Blue Tree" manned reconnaissance missions (either USAF RF-4Cs or Navy RA-5C Vigilantes) or "Buffalo Hunter" Ryan BQM-34 Firebee RPVs. A small target a third of the size of a MiG-17, the Firebee was not fast, but it was maneuverable and hard to find. Firebees were remotely controlled by enlisted men onboard DC-130A drone controllers over Laos or the Gulf of Tonkin, the controllers "flying" the Firebee via a joystick not unlike those of a flight simulator, relying on the Firebee's onboard cameras and navigation systems to see where the drone was going. Compared to using manned reconnaissance aircraft, the Firebee was a cheap and safe alternative. The VPAF shot down Firebees whenever possible, for two reasons: to keep the Americans from photographing sensitive areas, and to give its pilots a relatively safe means of target practice against a maneuvering, semi-hostile target. It was also less sensitive politically than attempting to shoot down a manned aircraft, though that was attempted on occasion. During 1969, the MiG-17s and MiG-21s of the 921<sup>st</sup> and 923<sup>rd</sup> regiments flew a total of 540 missions against Firebees, shooting down ten of them. (The VPAF gives official credit to "Firebee killers," but as they were unmanned, this thesis does not recognize those as aerial victories, following the precedent set in World War II by British and American V-1 interceptors.) During 1970 and 1971, a total of about 100

missions were flown against Firebees, resulting only one kill and one of the most bizarre episodes of the Vietnam War.<sup>199</sup>

On 9 March 1971, Luong Duc Truong was scrambled from the 923rd's base at Kep to intercept a drone. Closing in with his MiG-17, Truong reported shooting it down, then disappeared from the radar scopes of his GCI controllers. He had either flown into the ground or had hit something, causing a fatal crash. VPAF records mention that the circumstances are unknown, but research into the Buffalo Hunter program gives some clues on what could have happened to Truong. A USAF sergeant who controlled the Firebee had spotted the MiG-17 on the drone's cameras. The unidentified sergeant took the Firebee down a river valley, unable to shake the MiG. Finally, the sergeant took a chance and flew the tiny drone between the girders of a bridge. The Firebee's cameras recorded that MiG pilot attempted to do the same, hit the bridge, and exploded. No mention is made of the Firebee being shot down, but this is the only recorded mention of a MiG being seen to crash while pursuing a drone, so it is quite possible that Truong was the one who hit the bridge.<sup>200</sup> According to the webpage of the 55<sup>th</sup> Strategic Reconnaissance Wing Association, the Firebee may have been indirectly responsible for the loss of as many as four other MiGs as well, by causing MiGs to run out of fuel, stall, or be shot down by friendly fire; at least one BQM-34 was shot down by Navy F-4s that misidentified it as a MiG. None of this is corroborated by VPAF records, who only record the loss of Truong on a Firebee mission, but it certainly is not beyond the realm of possibility.<sup>201</sup>

#### *Battles During the Lull, 1970-71*

The air over North Vietnam was not entirely quiet during this lull, and Firebees were not the only aircraft lost. Richard M. Nixon, now President, was determined to negotiate in good faith with the

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<sup>199</sup> Toperczer, *Air War*, pp. 35, 38.

<sup>200</sup> Toperczer, *MiG-17 and MiG-19 Units*, p. 53; The USAF sergeant was not awarded an aerial victory for this "kill," and it is possible that the entire story is just a legend. However, many of the details mesh with the reported conditions in which Truong went down.

North Vietnamese, although it was becoming obvious that Hanoi was prepared to spin out the Paris peace talks until the Americans left Southeast Asia. That was becoming a reality, as “Vietnamization” saw a massive drawdown of American ground forces through 1969 and 1970; the bloody battle of Ap Bia Mountain (Hamburger Hill) in mid-May 1969 was the last large-scale action between Americans and North Vietnamese troops. Ho Chi Minh had died in 1969, but the North Vietnamese government, now led by Prime Minister Pham Van Dong, was determined to see the war through until Saigon fell. Supplies continued to flow south over the Ho Chi Minh Trail through Laos and Cambodia. Attacks on the Trail intensified, and Nixon authorized the use of B-52 strikes overtly in Laos, and secretly under Operation Menu in Cambodia. He also made clear to Hanoi that the Blue Tree reconnaissance sorties would continue and would be escorted by fighters, who had permission to defend themselves from both ground and air threats. Generally speaking, the Blue Tree aircraft were left alone, aside from the occasional ground fire.

That changed on 28 January 1970. A RF-4C was conducting a Blue Tree sortie when it was fired upon by antiaircraft fire. One of the escorting F-105Gs, piloted by Captains Richard Mallon and Robert Panek, attacked the gun battery but was itself hit as it pulled away. Both crew ejected north of Mu Gia Pass, and the rescue forces were scrambled, consisting of four HH-53C heavy-lift helicopters (nicknamed “Super Jolly Green Giant”), several A-1H “Sandies” as escorts, and a HC-130P Hercules to act as rescue controller and refueller for the helicopters.. A SAM was fired at one of the A-1s, and US Navy radar picket destroyers warned the rescue force that MiG-21s were in the area. Not long after the warning was given, two MiG-21s of the 921<sup>st</sup> Fighter Regiment, piloted by Pham Dinh Tuan and Vu Ngoc Dinh, attacked two of the HH-53s orbiting northwest of the crash site, inside Laos. Dinh fired a K-13 into one of the HH-53s, destroying it instantly and killing all six men aboard. Tuan radioed that he had shot down a F-4 as well, but there were no F-4s in the area; the reconnaissance Phantom had already returned to base. Shortly thereafter, Tuan himself was killed when he flew into a mountainside

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<sup>201</sup> Bruce Bailey, “Drones Over Southeast Asia.” The 55<sup>th</sup> SRW Association website, [www.55srwa.org](http://www.55srwa.org).



on approach to Vinh, due to the weather. Mallon and Panek's fates were not known until their remains were returned in 1988, having possibly been shot by North Vietnamese militia.<sup>202</sup>

The loss of the helicopter was an abrupt reminder that the war was still going on. In response, the US Navy began placing their BARCAP F-4Js below Vietnamese radar coverage, positioning them to attack VPAF MiGs if they looked as if they would attempt to attack a Blue Tree mission. On 27 March, two F-4s from VF-143, embarked on USS *Constellation*, were sent to intercept two MiG-21s detected by the radar pickets. One fired two Sparrows at a MiG-21 at beyond visual range, but predictably, both Sparrows missed.

The next day, the Navy ran a fighter sweep over the airstrip at Muong Xen. Due to stormy weather, the closest MiG bases at Vinh and Tho Xuan were socked in, and so two MiG-21s from Kien An, further north, were scrambled instead. Three F-4Js of VF-142 were launched from *Constellation* to intercept (a fourth was "downed" on the catapult with mechanical problems); one of the three's radar went out, so it orbited away from the projected battle area as a reserve. The remaining two F-4s, crewed by Commander Paul Speer and Lieutenant (jg) John Carter in one and Lieutenants Jerome Beaulier and Steven Barkley in the other, sped southwest. In contrast to the VPAF MiG pilots, who had just entered the 921<sup>st</sup> Regiment, the Americans were experienced: Speer was already a MiG killer, having shot down a MiG-17 with a F-8 on 19 May 1967; Beaulier was a graduate of the first Top Gun class; Barkley had undergone the proto-Top Gun course run by VF-121.

The Red Crown controller advised the two F-4s of "bandits at 25 miles, you're cleared to fire...and they've dropped their tanks." American signals intelligence was listening in on the conversations between the VPAF pilots and their GCI. About the same time, Beaulier's radar failed, but a few seconds later, he spotted the MiGs above and to the right. Both sides split their flights, but the MiGs evaded Beaulier in a few tight turns and went after Speer, the lead MiG-21 firing an Atoll at him. Carter, the RIO, yelled a warning to his pilot, but Speer calmly replied, "No chance," and maintained his course. The K-13 needed the heat source of a hot engine to track, and the inexperienced

Vietnamese had fired from the front quarter. The formation split up once more as Speer flew between them, and while he chased one MiG-21, Beaulier got back into position and went after the other. Beaulier, unseen in the MiG's blind spot, fired two Sidewinders, turning the MiG-21 into a fireball. Speer chased the remaining MiG-21 nearly back to Kien An before Red Crown ordered him to turn back; the BARCAP was not allowed to go over land unless absolutely necessary.

The remainder of 1970 passed without further incident, though the USAF launched a series of airstrikes on SAM sites around Mu Gia and Ban Karai Passes in early November, as these had begun targeting interdiction aircraft attacking the Ho Chi Minh Trail.<sup>203</sup> An opportunity for fighter combat arose on the night of 20 December, when Operation Kingpin was launched against the Son Tay prison complex just northwest of Hanoi—an elaborate, well-planned rescue of American POWs. Supported by numerous feints by the US Navy towards Hon Gay and several dozen F-105G Wild Weasels, a force of six helicopters landed at Son Tay. After a brief firefight that left several North Vietnamese guards dead, the rescue force learned that the POWs had been moved elsewhere due to flooding. Both the USAF and the Navy had F-4s waiting to intercept VPAF MiGs, but the VPAF was chronically short of night-trained pilots, with only thirteen being so qualified.<sup>204</sup>

These brief collisions between Vietnamese and American airpower in early 1970 were isolated incidents, but events in late 1971 hinted at what was to come. From August 1969, Nixon's Assistant for National Security Affairs, Henry Kissinger, had been secretly meeting with North Vietnamese diplomats Le Duc Tho and Xuan Thuy. In October 1971, after twelve such meetings, the North Vietnamese abruptly broke off the contacts, roughly about the same time Nixon and South Vietnamese President Nguyen Van Thieu agreed to a new peace proposal. The proposal offered to withdraw all American troops from South Vietnam (about 139,000 men), exchange prisoners (including the American POWs in North Vietnam), establish a ceasefire, and hold elections in the South, which in

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<sup>202</sup> Toperczer, *MiG-21 Units*, p. 21; Hobson, p. 197.

<sup>203</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers 1965-70*, pp. 77-84.

<sup>204</sup> Toperczer, *MiG-21 Units*, p. 26; Hobson, p. 209.

turn would be internationally supervised.<sup>205</sup> No mention was made of a North Vietnamese withdrawal of troops, but Kissinger privately relayed to Le Duc Tho that the United States expected such a move. Thieu had, understandably, reservations about leaving the North Vietnamese Army in place while the Americans left. Hanoi refused the plan, insisting that the Americans must withdraw first and Thieu step down in favor of a coalition government that included the remnants of the Viet Cong. Both sides had strong reasons to suspect the other of making empty gestures—Nixon because November Senate elections were coming up, and Phan Van Dong because the Hanoi Politburo had already decided to end the war on its terms, by force.<sup>206</sup>

The North Vietnamese high command, spearheaded by Giap, had reason to believe that the massive attack they had planned for spring 1972 would succeed. The widespread rioting in the United States (including the Kent State shootings) and Congressional calls for an immediate withdrawal of all American troops had convinced the North Vietnamese—to a certain extent, correctly—that America was trying desperately to find a way to get out of South Vietnam, and would not overly interfere. As for Thieu's government, it was only marginally less corrupt than its forebears, and the ARVN's Lam Son 719 offensive, which was meant to cut the Ho Chi Minh Trail at Tchepone in Laos, had turned into a rout of the ARVN.

There also may have been a hint of desperation on the North Vietnamese side as well. No Vietnamese leader had ever trusted China, and China's rapprochement with the United States in 1971 smacked of the same "stab in the back" that the Viet Minh had gotten at Chinese hands in the 1954 Geneva agreement. The Soviet Union and the People's Republic had come very close to war along the Manchurian border in 1971 as well, and both sides needed the United States as a counterweight against the other. China needed assistance to recover from the disastrous Cultural Revolution, and the USSR needed American grain after yet another poor harvest. Nixon found himself in an enviable political position, and used it, scheduling his historic meeting with Mao Zedong for February 1972 and a summit

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<sup>205</sup> Mark Clodfelter, The Limits of Air Power: The American Bombing of North Vietnam. (New York: Free Press, 1989), pp. 147-148.

with Leonid Brezhnev in May. Hanoi had played the Soviets and the Chinese off each other and benefited enormously, but now the North Vietnamese sensed that one or both might abandon them if it suited their purposes. For now, Chinese and Soviet aid increased, and Giap may have felt he was in a “use it or lose it” proposition.<sup>207</sup>

American aircraft involved in attacks on the Trail noticed a buildup in traffic, and three NVA divisions were identified along the South Vietnamese-Cambodia border, as well as several divisions in Laos and along the DMZ. American and South Vietnamese “Prairie Fire” special forces units were being ambushed within minutes of insertion near the Trail—the NVA obviously did not want its enemies to know just how big the offensive was going to be.<sup>208</sup> Hanoi’s rhetoric against South Vietnam increased about the same time. The North Vietnamese hoped that, with a successful offensive, they might topple Thieu’s regime; at the very least, they would demonstrate that Vietnamization had failed, influence the American Presidential race that would be starting about the same time, and stiffen waning support from Moscow and Beijing. The only way out for Nixon at that point would be to accept a peace proposal on Hanoi’s terms.<sup>209</sup>

Because the Americans had begun using B-52s and Lockheed AC-130 Spectre gunships on the Trail, the VPAF was ordered to penetrate Laotian airspace to drive off the USAF aircraft. MiG-21 sorties began to be mounted from Tho Xuan and Vinh, but the monsoon weather and difficulties with GCI coordination had resulted in the MiGs taking too long to assemble. By the time they got on course for the border, radars on the Seventh Fleet had already detected them, American signals intelligence picked up the GCI chatter, and the B-52s and AC-130s were withdrawn from the area, to wait until the MiGs turned for home before resuming their attacks on truck traffic. The VPAF moved mobile radar units further south to cover the northern terminuses of the Trail, and dispatched officers to observe B-52 flight patterns over Mu Gia Pass. Finally, on the night of 4 October 1971, the VPAF tried again and

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<sup>206</sup> Stanley Karnow, Vietnam: A History. (New York: Penguin Books, 1991), pp. 641-643.

<sup>207</sup> Clodfelter, pp. 149-150.

<sup>208</sup> Schultz, pp. 263-264.

<sup>209</sup> Karnow, pp. 654-655.

sent up veteran MiG-21 pilot Dinh Ton from Dong Hoi to attack the B-52s over the Trail. Ton found that the B-52s had EB-66 support that jammed all radio communications, but he still managed to find a “cell” of three Stratofortresses. At the last moment, Ton broke off his attack and headed for Tho Xuan: something had not seemed right to him. As the B-52s had both their own tail guns (four Browning fifty caliber machine guns) and F-4 escorts, Ton may have made the prudent choice.

Over a month later, on 20 November, the VPAF had slightly better luck. Vu Dinh Rang took off at 8 PM local time from An Son, and unlike Dinh Ton, he did not have to contend with jammed radios. Rang was vectored in on a B-52 cell, closed to within about four miles, and fired off two K-13s at two separate targets. Rang returned without incident to An Son, learning that he had damaged a B-52 which had successfully made an emergency landing at U Tapao airbase in Thailand. The Stratofortress was a giant target, and its sheer size and resiliency—typical in the long line of Boeing-built bombers—made shooting one down difficult, especially with the comparatively tiny Atoll missiles. Nonetheless, Rang had proven that it could be done.<sup>210</sup>

In response to a NVA shelling of Saigon in December, and possibly because of the MiG attacks, Nixon authorized a limited resumption of the bombing of North Vietnam, to last five days and strike airfields, SAM sites, fuel depots, and supply sites south of the 20<sup>th</sup> Parallel. Remarkably similar to Flaming Dart, the operation was codenamed Proud Deep Alpha. It was somewhat effective, but badly hampered by poor weather. The weather may have been why the VPAF did not attempt to overly interfere with these sorties, but it had already struck just before Proud Deep started, on 18 December.

Two F-4Ds of the 432<sup>nd</sup> TRW, based at Udorn RTAFB in Thailand, were covering the extraction of a Prairie Fire special forces team in northeastern Laos. Apparently without warning, two MiG-21s of the 921<sup>st</sup> Regiment, piloted by Le Thanh Dao and Vo Si Giap, attacked the F-4s, Dao shooting down the one crewed by Major Kenneth Johnson and Lieutenant Samuel Vaughan. The MiGs, having made their pass, headed back into North Vietnam to either Yen Bai or Noi Bai to refuel. USAF rescue forces were scrambled and sent north with four more F-4Ds from the 432<sup>nd</sup> acting as escorts. As the Jolly Greens

attempted to establish contact, another Phantom fell victim to Dao and Giap; the latter caught the F-4 of Major W.T. Stanley and Captain L. O'Brien heading back to a tanker to refuel, and shot it down. A third F-4D was lost half an hour later after it ran out of fuel attempting to dogfight the MiGs, Lieutenant Kenneth Wells and Major Leland Hildebrand joining the other crews in the Laotian jungle. It was a black day indeed for the USAF, which lost three Phantoms without inflicting any losses on the MiGs; the only consolation was that all three crews had managed to eject: two of them (Johnson/Vaughan and Wells/Hildebrand) began the long journey to the Hanoi Hilton, while Stanley and O'Brien were rescued.<sup>211</sup>

It was the last aerial combat during the lull, which was rapidly ending. 1972 would bring the most intensive period of the entire air war. Having licked their wounds and recovered, the two boxers were about to rejoin their bout for the final round.

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<sup>210</sup> Toperczer, MiG-21 Units, pp. 25-26.

<sup>211</sup> Hobson, p. 217.

## ***1972: The War of the Aces***

### *Introduction*

Nixon gradually increased the pressure on the North Vietnamese as the Americans recognized the buildup for Hanoi's attempt to destroy South Vietnam by force, the Easter Offensive. Operations Freedom Train and Fresh Bath Alpha both resulted in air battles. Almost immediately, the effects of Top Gun training began to be felt among Navy units, as F-4 crews were able to translate the lessons learned in Top Gun into aerial victories. Foremost among this new crop of well-trained aircrews was Randy Cunningham and William Driscoll. The USAF, while still not emphasizing air combat in its training, nonetheless also got off to a good start through the efforts of a single man, Robert Lodge. Lodge, with the support of his superiors in the 432nd Wing, gathered together a group of aggressive F-4 aircrew, amongst them future aces Richard Ritchie, Charles deBellevue, and Jeffrey Feinstein. The 432nd also began to achieve kills, reflecting the newfound spirit of the USAF pilots.

When North Vietnam launched the Easter Offensive, Nixon responded by taking off the gloves and retaliated with Operation Linebacker, mining the Vietnamese ports and unleashing the USAF and US Navy to strike most targets in North Vietnam. The first day of Linebacker, 10 May 1972, led to the largest air battles of the war, with at one point over sixty aircraft locked in combat near Haiphong. It ended in victory for the Americans, and though the pressure was kept on the VPAF, the North Vietnamese regrouped, developed new tactics, and continued to fight. Throughout the summer of 1972, both sides traded blow for blow as the initiative switched from North Vietnam to the United States and back again several times. Gradually, the constant, intense pressure from the Americans allowed them slowly to gain the upper hand on the VPAF, though neither the USAF nor the US Navy was able to gain air superiority. While the USAF had done only slightly better than it had during Rolling Thunder, the Navy's kill ratio was nearly 12 to 1, the product of Top Gun training. The

success of Linebacker was a major contributing factor to the failure of the North's Easter Offensive.

Peace talks were resumed, and it seemed that the end of the war was in sight.

The talks failed in November, however, and Nixon responded with Operation Linebacker II, the most intensive airstrikes against the North of the war, using B-52s to strike targets in the metropolitan areas of Hanoi and Haiphong for the first time. The VPAF, still recovering from the losses sustained during Linebacker I, was able to put up only ineffectual resistance to the B-52 attacks, though controversy rages to this day on whether two B-52s were shot down by MiGs. Linebacker II ended the war for the United States, as Hanoi agreed to the Paris Peace Accords; with two American victories in January 1973, the air-to-air war over North Vietnam ended.

#### *19 January 1972: The First of Many*

Though Proud Deep Alpha officially ended on 30 December 1971, it more or less unofficially continued for some months, as both USAF and US Navy air units conducted "protective reaction strikes," punitive actions in response to attacks on Blue Tree reconnaissance sorties and losses taken during Proud Deep Alpha. Nixon authorized the strikes on a far wider range than previously, as he still hoped to dissuade the North Vietnamese from carrying out their invasion, and possibly further discourage the Soviets and Chinese from their continued support of Hanoi.

Since losing a MiG-21 to Beaulier and Barkley in 1970, the VPAF had not attacked US Navy aircraft, but that changed on 19 January 1972, when the Navy launched a reaction strike on caves around the airstrip at Quan Lang, northwest of Vinh; the caves were thought to house MiGs and SAM missile caches. 19 aircraft were launched from USS *Constellation*, covered by a MiGCAP of two F-4Js of VF-96; the first was piloted by Lieutenant Randall Cunningham and Lieutenant (jg) William Driscoll, the second by Lieutenants Brian Grant and Jerry Sullivan.

Cunningham and Driscoll were both Top Gun graduates, and both were regarded as among the best in their field—Cunningham as a pilot, Driscoll as a RIO. Cunningham in particular has been described as being obsessed with flying and fighting; not for nothing did his callsign, "Duke," refer to John Wayne. As the commander of VF-96 once noted, "If it didn't concern flying, Randy wasn't interested." While



waiting to join his squadron, Cunningham had flown a few extra missions in training TA-4s at Top Gun to add to his experience, and had trained against USAF F-106 Delta Darts, because of their similarity to the MiG-21.<sup>212</sup> His career had suffered somewhat because of this obsession, and his marriage apparently broke over it, but even his critics agreed that Cunningham was “one hell of a pilot.” Driscoll, known as “Willie” or “Irish” to his friends, was more level-headed than Cunningham, with equally good, and sometimes better, situational awareness. They were a good team.<sup>213</sup> That reputation and their training was about to be put to the test.

The Alpha strike flew south of the DMZ, then turned and headed north over Laos before splitting the force—the Iron Hand flak suppression A-7s and F-4s attacked Quang Lang from the south, while the strike aircraft came in from the west. The MiGCAP stayed with the latter. The strike did not know that they were flying directly between two SAM sites, which promptly engaged the force. Cunningham barely avoided two SAMs shot at him, and as he climbed to resume his covering position, he spotted two MiG-21s, flying down a valley towards the rear of the strike force. Cunningham called out a warning, dove to 200 feet, and came up behind the MiGs. Driscoll locked on with the radar, but Cunningham preferred to take the shot with the more reliable Sidewinder, especially as the MiG-21s, oblivious to his presence, were still in afterburner, presenting a perfect heat source for the Sidewinders. At the moment Cunningham fired, the target MiG’s wingman spotted the flash of the launch, and the formation split, evading the Sidewinder. Cunningham, correctly evaluating the MiGs as later-model MiG-21MFs (operating with the 921<sup>st</sup> Regiment at Bai Thuong), went into a high barrel roll to evade what he thought would be a “sandwich play,” with the F-4 caught in the middle. Instead, the second MiG-21 fled north, leaving his leader alone. Cunningham guessed that the remaining MiG would reverse its turn to break off the engagement as well, and was in perfect position when it did exactly that. Hit by a second Sidewinder, the MiG literally tumbled into the ground.

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<sup>212</sup> Drendel, p. 63.

<sup>213</sup> Don Holloway, “Randy Cunningham: Red River Showdown,” Legends of Flight, Aviation History special edition 2003, p. 68.

Cunningham went in pursuit of the second MiG-21, going into afterburner in an attempt to close the distance. He was getting in range when Driscoll asked him, "What's our [fuel] state?"

"Willie," Cunningham replied, "don't bother me now. I'm chasing a MiG."

"No shit," Driscoll retorted. "I want your state *right now!*"

Cunningham looked down at his instrument panel and saw to his horror that the F-4 had barely enough fuel to get back to the Gulf of Tonkin. After firing a desperation Sparrow shot (which perversely failed to leave the aircraft), he broke off pursuit and, after refueling from a tanker, returned to the *Constellation* to a raucous welcoming committee. Cunningham and Driscoll had scored the first Navy aerial victory in nearly two years.<sup>214</sup>

#### *The Air Force Returns to Action, February-March 1972*

According to German ace Erich Hartmann, there are two kinds of pilots: "head" pilots and "head and shoulders" pilots. The former were like Manfred von Richthofen: pilots that learned everything they could about their enemy, stalked them like a hunter, and then attacked when the situation was most favorable, and all the advantages were theirs. Some "head" pilots would disengage after getting one or two kills, repositioning themselves for another stalking attack, or heading home if the situation was no longer favorable. "Shoulders" pilots flew mostly by instinct and once in a fight, would stay until their opponent was shot down or they were. Both types were equally deadly: Nguyen Van Coc is an excellent example of a "head" flyer, while Robin Olds personifies the "shoulders" fighter pilot.<sup>215</sup>

Another superb example of a "head" pilot was Major Robert Lodge, a USAF pilot assigned to the 555<sup>th</sup> Tactical Fighter Squadron of the 432<sup>nd</sup> Wing at Udorn RTAFB. Like Cunningham, Lodge was obsessed with air combat, and studied everything he could on the subject. Lodge had graduated fourth in his class from the Air Force Academy and was known as "the fastest slide rule in the West" for his

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<sup>214</sup> Brad Elward and Peter Davies, US Navy F-4 Phantom II MiG Killers 1972-73. (Oxford: Osprey Publishing, 2002), pp. 6-10.

prowess in studying aeronautics. He had already flown a hundred missions as a F-105 pilot in the waning months of Rolling Thunder, but once his tour had ended, Lodge had volunteered for another. The USAF complied, first sending Lodge to Fighter Weapons School at Nellis AFB. While the emphasis at Weapons School, at the time, was geared more towards air-to-ground ordnance delivery, Lodge continued to avidly study air-to-air tactics; he frequently sought out Ralph Wetterhahn, an Operation Bolo MiG-killer and now a Weapons School instructor, to ask questions. Following completion of Weapons School, Lodge returned to Southeast Asia as the 432nd's weapons officer. It was a perfect place for Lodge to fulfill his desire for air combat, and he wasted no time in doing so.

Lodge was ably assisted by his backseater, Lieutenant Roger Locher. Unlike Lodge, Locher had not planned on an Air Force career from the start, but like him, wanted to fly fighters; he had enjoyed tracking coyotes in his native Kansas and had the same hunter's instinct that Lodge possessed. His eyes were not quite good enough to allow him to become a pilot, so instead Locher trained as a Weapons Systems Officer, which would at least allow him to be in fighters. Locher was on his first tour in Vietnam, but he quickly acquired a reputation for skill and enthusiasm. Nor was he alone—the 432<sup>nd</sup> had a sign over the entrance to the wing's tarmac at Udorn. On one side, it read: "OUR MISSION: PROTECT THE FORCE, GET THE PICTURES." On the other, it said simply, "AND KILL MIGS."

Dinh Ton's and Vu Dinh Rang's attacks on the B-52s over Laos had not gone unnoticed by the USAF. Lodge was successful in petitioning Seventh Air Force to allow the 555<sup>th</sup> TFS—known as the "Triple Nickels"—to mount nighttime MiGCAP missions. Lodge was also persuasive enough to convince his superiors to equip the 555<sup>th</sup>'s F-4Ds with a new, secret system called Combat Tree. Combat Tree allowed F-4s to track MiGs by the Identification Friend or Foe (IFF) signal the MiGs transmitted to their own GCI controllers and ground defenses. By using this system, the 555<sup>th</sup> could use its Sparrows in BVR attacks without worrying if the radar was tracking a friendly aircraft.

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<sup>215</sup> W. Wayne Patton. Aces. (Carrollton, TX: Squadron/Signal Publications, 1998), pp. 3-4.

Naturally, the 555th's aircraft would still be using cues provided by the Navy's offshore Red Crown radar pickets, and the "Disco" EC-121 airborne early warning aircraft orbiting over central Laos.<sup>216</sup>

On 21 February 1972, Lodge and Locher were patrolling over Laos when Locher, using Combat Tree, detected a MiG-21 moving across the border at low altitude. Getting confirmation and clearance to fire from Red Crown, Lodge took the F-4 to low altitude, setting an ambush. When Locher locked on at eleven miles distance, Lodge fired all three of his Sparrows in succession. The first two detonated as small flashes in the night, but a split-second after the second detonation there was a gigantic flash and a fireball as the MiG disintegrated. Lodge and Locher had scored the first USAF kill in four years and its first at night since the Korean War. Soon after the first MiG-21 exploded, Red Crown advised Lodge that two more MiG-21s were coming after them; the first MiG had been bait for a trap. Lodge turned and, with a head start and more power, outdistanced the MiGs to return to Udorn safely. His tactics had been vindicated.<sup>217</sup>

A little over a week later, the Triple Nickels scored again; this time, the victorious pilot was already well known. Lieutenant Colonel Joseph Kittinger had gained worldwide attention in Project Highjump in the late 1950s: parachute jumps from balloons at the edge of space, a forerunner of NASA's Mercury manned space program. By 1972, Kittinger was a little aged for flying combat at 43 years old, and was known as "Grandpa" to the other pilots. Like Lodge, he was no stranger to Southeast Asia, on his third tour in the theater, and was slated to return to the United States within two months.

Flying with Lieutenant Leigh Hodgdon on 1 March, Kittinger led a section of two F-4Ds to northern Laos, having been warned that the VPAF was attempting to lure Phantoms into ambushes, as they had tried to do with Lodge. Not long after arriving at their patrol station around 8 PM local, the Disco EC-121 detected a single MiG-21 crossing the "fence," the Laotian border, and Kittinger's section was vectored to intercept. Hodgdon locked on at eighteen miles, at which point the MiG-21 turned around and began heading back to North Vietnam, in an effort to escape and/or to lead the Phantoms into the

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<sup>216</sup> Sherwood, pp. 214-216, 222-223.

<sup>217</sup> Hanak, p. 85; Sherwood, p. 216.

ambush. Kittinger, however, opened fire before the MiG could escape. The Sparrows were true to form: the first fell off the aircraft, the second never fired, and the third finally fired and guided, destroying the MiG-21. Kittinger and his wingman then had to avoid two Atolls fired at them from the hapless MiG's wingmen and returned safely to their patrol station.<sup>218</sup>

The US Navy scored its second victory of the year five days after Kittinger and Hodgdon. While the USAF mostly confined its aerial activity to Laos, the Navy continued to run Blue Tree photo missions over Vietnam, with escorts. Covering the Vigilante reconnaissance aircraft on 6 March were two F-4Bs of VF-51, on MiGCAP over Laos, and two F-4Bs of VF-111 on Force CAP (FORCAP) over the Gulf of Tonkin. FORCAP was similar to BARCAP in that it was intended to protect the fleet, but it also was to assist the photo aircraft if MiGs were detected heading towards it. (The Vigilante was so fast that it would outdistance both its F-4 escorts and MiG interceptors, so it flew alone.) Of the eight naval aviators assigned to fly on 6 March, two (Foster Teague and James Ruliffson) were former Top Gun instructors.

Unfortunately for Ruliffson, his aircraft sprung a hydraulic leak and had to be replaced by another Phantom crewed by Lieutenant James Stillinger and Lieutenant (jg) Rick Olin; Stillinger was a Top Gun graduate. Flying on their wing was Lieutenant Garry Weigand and Lieutenant (jg) William Freckleton. They were launched from USS *Coral Sea* and flew to their FORCAP station, as the MiGCAP crews (Teague and his RIO, Lieutenant Ralph Howell, as well as Lieutenant Commander Jerry Houston and Lieutenant Kevin Moore) took up their station over Laos, using the same approach that VF-96 had used in Cunningham's January kill. Controlling the strike was Senior Chief Radarman Larry Nowell aboard USS *Chicago*, acting as Red Crown.

As the Vigilante approached the known MiG base at Quan Lang northwest of Vinh, the pilot sighted first "blue bandits"—MiG-21s—closely followed by "red bandits"—MiG-17s. As the Vigilante headed for the Gulf at full speed, the MiGCAP Phantoms attacked the MiGs. Teague and Howell got off two Sidewinders at one MiG-17, but at best only damaged it. Once the Vigilante was clear, the two

Phantoms disengaged and followed it out of North Vietnam. Nowell vectored the FORCAP F-4s to cover their retreat.

At this point, the FORCAP Phantoms were almost completely dependent on Nowell's guidance, as Stillinger's radar was intermittent and Weigand's completely out. Neither F-4 crew could spot the tiny target Nowell was tracking, even when the radar showed the two F-4s and one MiG-17 virtually on top of each other. Stillinger called out, "No joy," meaning he could not acquire the target visually. Nowell radioed back, "Look low, three miles." The Phantom crews sighted the MiG a moment later, a thousand feet above the jungle.

Stillinger and Weigand dived on the MiG, but the pilot turned into them. Wisely remembering his Top Gun training, Stillinger did not accept the invitation to get into a turning fight, and disengaged by climbing, then diving back down to attack. This went on for several attempts before Stillinger got frustrated; when the MiG once more turned to avoid him, Stillinger turned with him and fired a Sidewinder. The VPAF pilot now broke hard, evading the missile and nearly rolling in behind Stillinger. The latter, after making sure Weigand had the MiG-17 in sight, accelerated to lure the VPAF pilot into a position where Weigand could make his attack. Once more, the MiG turned towards him, and Weigand lowered his speedbrakes to slow the F-4 down. The VPAF pilot made a fatal mistake: he turned back to resume his pursuit of Stillinger, whose backseater Olin was keeping an eye on the MiG. Stillinger radioed, "Okay, the MiG is now at my right four o'clock—shoot, shoot, shoot!" Weigand, retracting his speedbrakes, did so, firing a single Sidewinder that tracked directly into the MiG's tailpipe. The Vietnamese fighter was bisected by the explosion. With four MiG-21s now headed for them, it was the turn of the FORCAP Phantoms to head for the safety of the ocean.<sup>219</sup>

On the night of 30 March 1972, the VPAF made one last foray into Laos in an attempt to disrupt American attacks on the Ho Chi Minh trail. Because of other events, the USAF had no MiGCAP up

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<sup>218</sup> Hanak, p. 87; Hobson, p. 226.

<sup>219</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1972-73*, pp. 10-16. It was the first of 13 successful engagements controlled by Larry Nowell, who would later win the Distinguished Service Medal for his extremely accurate fighter controlling. Nowell was only the second enlisted man in Navy history to win a

over Laos, but a raid warning from Red Crown to the 432<sup>nd</sup> at Udorn rapidly got a F-4D into the air, crewed by Captains Frederick Olmsted, Jr., and Gerald Volloy. Less than twenty minutes later, Red Crown notified Olmsted that a MiG had been detected twenty miles away from him. When Volloy locked onto the MiG, Olmsted, as Lodge and Kittinger had, fired three Sparrows. All three appeared to work, but there were no visible detonations in the darkness over Laos. Suddenly, the two Americans saw a fireball erupt a little over a mile directly in front of them. They watched as the fireball turned into a comet that eventually disappeared into the jungle below. After confirmation from Red Crown that the MiG had disappeared from radar, Olmsted and Volloy returned to Udorn.<sup>220</sup>

The “other events” were the invasion of South Vietnam by the North Vietnamese Army.

*The Easter Offensive and Operation Freedom Train, April-May 1972*

In late February 1972, Nixon had made his historic visit to Beijing, but not before issuing a warning about a North Vietnamese invasion: the United States would meet force with force. To bolster this statement, Nixon authorized Operation Bullet Shot in early February, which dispatched 18 F-4Ds from the Philippines to bases in Southeast Asia, and 37 B-52s to Thailand and Guam. He also had Kissinger inform Soviet Ambassador Anatoly Dobrynin that a North Vietnamese offensive might result in the cancellation of the planned May summit between Nixon and Brezhnev, and finally called for more negotiations between North Vietnam and the United States. China responded by adopting a “position of indifference,” which was good enough for Nixon; the Soviet response was noncommittal, but arms and equipment continued to flow into Haiphong; North Vietnam agreed to more negotiations, with 20 March set as the beginning date. In early March, Le Duc Tho abruptly announced that 20 March was no longer feasible and postponed talks until 15 April.<sup>221</sup>

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<sup>220</sup> Hanak, pp. 86-87.

<sup>221</sup> Clodfelter, pp. 151-152.

The reason for this postponement became clear on 30 March, when the North Vietnamese invaded South Vietnam. The North Vietnamese offensive, known as Operation Nguyen Hue to the NVA and dubbed the Easter Offensive by the Western media, consisted of three prongs. The northern prong had as its target Hue and Da Nang, and attacked across the DMZ; the central prong aimed for Pleiku and eventually the coast, to cut South Vietnam in half at the Central Highlands; the southern prong went straight for Saigon itself. Unlike the Tet Offensive, this was an entirely conventional offensive using combined arms of tanks and artillery, consisting of thirteen divisions, or nearly the entire North Vietnamese Army. Vo Nguyen Giap had planned Nguyen Hue, and hoped that the NVA would brush aside ineffectual ARVN resistance and take the campaign's objectives before the United States could intervene. Even if the objectives were not taken entirely by 15 April, the North Vietnamese would be negotiating from a position of strength. Huge battles developed along the DMZ, near Kontum, and at Tay Ninh north of Saigon.<sup>222</sup>

While the scope of the attack came as a shock to American officials, its timing did not. Nixon, unlike Johnson during Tet, saw the Easter Offensive as an opportunity for the United States to win the war. The NVA attack was clearly an invasion, not the "popular uprising" as North Vietnam had publicized the Tet Offensive, and as a result the American public was more likely to support a strong American military response. If the ARVN held, it would validate the theory of Vietnamization, but to help it hold, the United States would have to use airpower both in the north, to stop the flow of supplies, and in the south, to provide close air support to ARVN units. Nixon activated Operation Constant Guard, immediately deploying American airpower to Southeast Asia. This included tripling the number of USAF Phantoms in theater and increasing the total B-52 force to 210 aircraft (half Strategic Air Command's available bomber force). The Marines sent five squadrons to South Vietnam, while the Navy increased its carrier strength from two to six ships—*Coral Sea*, *Hancock*, *Constellation*, *Kitty Hawk*, *Midway*, and *Saratoga*—the largest concentration of naval airpower so far in the war. The Constant Guard deployments would continue through September 1972, but the first batch of



deployments came on 1 April. Simultaneously, Nixon ordered Operation Freedom Train to begin on 5 April, which allowed airstrikes on infrastructure, supply points, airfields, and SAM sites south of the 18<sup>th</sup> Parallel (about halfway between the cities of Vinh and Dong Hoi). This too resembled the opening salvos of Johnson's war, Flaming Dart II and the early phase of Rolling Thunder. Nixon did not assert the same sort of iron control that Johnson and McNamara had, leaving the operational planning to CINCPAC (Admiral John S. McCain Jr., whose son was still languishing in the Hanoi Hilton) and Seventh Air Force's commander, Major General John Vogt, Jr.; yet Nixon also realized that Freedom Train's impact would be as limited as Rolling Thunder. To truly hurt the North Vietnamese and to send a strong message, Nixon was willing to unleash the B-52s north of 20<sup>th</sup> Parallel, where they had never gone before. While fighter-bombers would still be the preferred weapon against targets such as bridges and powerplants, the B-52s would be extremely effective against large targets such as railyards, and moreover would be a powerful psychological weapon—a warning of how far the United States was willing to go to end the NVA offensive. With no North Vietnamese response to Freedom Train, Nixon launched Freedom Porch Bravo, sending B-52s against the oil storage facilities at Haiphong, F-4 fighter-bombers to hit targets near Hanoi, and further Navy strikes on Haiphong, all of it covered extensively by Wild Weasel F-105Gs and Iron Hand flak suppressors.<sup>223</sup>

The VPAF's response to Freedom Train had been muted, with intercepts virtually nonexistent, though the entire North Vietnamese air defense network had gone on full alert. With such a massive attack on the North Vietnamese heartland, the VPAF was compelled to respond, and did. Besides launching over 250 SAMs at the attacking force, the VPAF sortied no less than thirty fighters from bases all over North Vietnam, not only intercepting American strike aircraft over North Vietnam, but attempting to attack them over Laos as well. Among the several dozen MiGCAP F-4D flights on 16 April was Basco Flight, led by Frederick Olmsted. Also flying with Basco was Major Dan Cherry and Captain Jeffrey Feinstein.

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<sup>222</sup> Hobson, p. 219.

<sup>223</sup> Clodfelter, pp. 153-154; Hobson, pp. 219-220.

Basco Flight was assigned to cover a strike on a target near Hanoi, but the strike flight aborted due to mechanical difficulties, and so the MiGCAP flew towards Yen Bai to take up a secondary position. As they neared the Red River valley, Olmsted's backseater, Captain Stuart Maas, got a radar contact twenty miles away; simultaneously, the Disco EC-121 ordered Basco to head south to another CAP station. Since Basco Flight was already in contact, they ignored Disco and went after the solitary bogey. Closing in within five miles, the Americans saw that the contact was two bare-metal MiG-21s, above and to the left. Olmsted's section climbed hard to the right, momentarily losing Cherry's section. This proved to be fortuitous, for as Olmsted's section began its climb, a camouflaged MiG-21 suddenly appeared—the classic North Vietnamese tactic of using one section for bait. Cherry and his wingman turned to engage the camouflaged MiG, which disappeared into a cloud bank. "Well, I'll never see him again," Cherry thought, but nevertheless pursued the MiG into the cloud, a somewhat reckless move as it left the two F-4s open to an ambush on the other side, or worse, an unseen SAM launch. Nothing happened, and when the Phantoms came out of the cloud, the MiG had disappeared. Cherry was turning back to rejoin Olmsted's section when his wingman, Captain Gregory Crane, spotted the camouflaged MiG-21, which had also climbed out of the clouds and was now a perfect, spread-eagled target for Cherry and Feinstein. Cherry selected Sidewinders and pulled the trigger—and nothing happened. The VPAF pilot, aware of the danger he was in, rolled and headed for the ground, with the two F-4s still in pursuit. Crane took over the lead, but the curse of bad missiles continued—his Sparrows would not fire, and he was not carrying Sidewinders. To complete the day's bad luck, Crane's radio went down at the same time, even as he fired his four Sparrows ballistically. Naturally, none of them hit, but they passed close enough that the MiG pilot had to break hard, losing airspeed. With Feinstein now locked on with Sparrows, Cherry got ahead of his wingman—both crews had resolved to pursue the MiG out of frustration more than anything else—and fired a Sparrow. The curse was broken and the missile tore the MiG-21's right wing off. The pilot ejected so close that Cherry feared hitting him, but they cleared the parachute by no more than thirty feet, enough for Cherry and Feinstein to clearly make out the pilot's features. Less than a minute later, Olmsted fired a Sparrow at

his target, the trailing MiG-21; the lead aircraft had quickly dived for the safety of low level, but his wingman, more than likely a new pilot, had only gone into a slow left break. The missile struck only a glancing blow, taking off a portion of the tailplane, so Olmsted executed a yo-yo—a swift climb and dive—and fired another Sparrow. This one blew apart the MiG-21; the pilot died in the explosion. With fuel running low, Basco Flight returned home. It was Olmsted's second kill in a month; Feinstein too would score again, but it would be a long month and a half before he did.<sup>224</sup> Other scorers on 16 April were Captains James Null and Michael Vahue, whose flight of four F-4Ds were scrambled from Udorn later in the day to intercept two MiG-21s over Laos. After the fourth aircraft in the flight missed with four Sparrows at beyond visual range, the flight closed into visual range and engaged head-on at twelve miles. This time, Null's Sparrows fired true and destroyed one of the MiG-21s. It had been a very successful day for the USAF, and the first time more than one MiG kill had been scored in a single day since February 1968.<sup>225</sup> 16 April also persuaded the VPAF to pull back its fighter strength to Pak Six, where its pilots could enjoy better ground control and ground defenses to help cover them. Once more, the VPAF abandoned the panhandle, some of the western provinces around Dien Bien Phu, and Laos to protect the vitals of North Vietnam.<sup>226</sup>

The VPAF scored in the air for the first time of the year on 27 April 1972. Hoang Quoc Dung and Cao Son Khao of the 921<sup>st</sup> Regiment took off from Noi Bai to set up a patrol station near the airfield at Bai Thuong, near Thanh Hoa. Red Crown detected one of the MiGs, and vectored two F-4Bs of VF-51 to intercept. The backseater of the trailing F-4, Lieutenant Commander James Souder, later recalled that conditions were perfect for a sucker play—a lone MiG-21 approaching two F-4s head-on, with a solid undercast. To make matters worse, the flight leader led Souder and his pilot, Lieutenant Albert Molinare, almost directly over Bai Thuong and did not order the section to throttle back—thereby reducing the early F-4's hallmark of a sooty black smoke trail from its engines. Combined with the weather, the flight should have abandoned the intercept rather than push a poor tactical position.

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<sup>224</sup> Drendel, pp. 27-28.

<sup>225</sup> Hanak, p. 89.

Souder's thought that it was a trap was confirmed when Red Crown radioed, "Whoops, he might have slipped behind you." A moment later, Souder and Molinare's F-4 was hit by a K-13 launched by Dung. Molinare attempted to head for the ocean, but the damage was done, and both men had to eject to become prisoners of war. The engagement was proof positive that American training still had gaps.<sup>227</sup>

VF-51 got a chance to exact revenge for Molinare and Souder's downing on 6 May, when the *Coral Sea* launched an attack on Bai Thoung airfield. There were fourteen VPAF fighters known to be at the base, and so the plan was to split the strike into a low-level attack group followed immediately by high-level bombers. The latter would be covered by VF-51's F-4Bs. As the first A-6 Intruder group bore in, they reported that some sort of training appeared to be going on—MiGs were practicing landings, some orbiting to wait their turn. They mostly scattered when the Intruders attacked, but the lead group of three A-6s came under attack from a single MiG-17 as they came off the target.

The two F-4s on station were flown by Lieutenant Commander Jerry Houston (who had just missed a chance for scoring a kill exactly two months before) and Lieutenant Charles Schroeder, their RIOs Lieutenants Kevin Moore and Richard Webb, respectively. Houston counted off the A-6s as they left Bai Thoung, finishing with, "And here's your MiG!" As Houston rolled in on the MiG, another MiG-17 dropped in behind Schroeder. Because of radio problems, Moore's warnings went unheard, but when cannon shells shot past Schroeder's canopy, he got the message and broke away, evading the MiG.

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<sup>226</sup> Toperczer, *MiG-21 Units*, p. 27.

<sup>227</sup> Toperczer, *MiG-21 Units*, pp. 27-32. Souder would later be awarded the Bronze Star, for assuming the role of the Hanoi Hilton's unofficial medical officer and probably saving the life of several wounded men.

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Sherwood, pp. 137-139.

Houston, meanwhile, closed on his target, ably assisted by Commander Roger Sheets, flying one of the A-6s. Seeing the F-4 preparing its attack, Sheets acted as a decoy, “dragging” the MiG-17 to a hundred feet off the ground. Houston worried that he might accidentally hit Sheets’ Intruder, and his balky radio kept Sheets from hearing his calls to break; as it turned out, Sheets intently watched Houston’s F-4, so when the latter finally launched a Sidewinder, he turned away. The MiG-17, because of its lack of power-booster controls and poor performance at low altitude, could do nothing to follow; the controls were literally frozen. The Sidewinder guided, struck the MiG, and the MiG-17 crashed into a karst ridge a split-second later. Since the A-6s had cratered the runway, several MiG-17s were unable to take off—presenting the Seventh Fleet with an opportunity akin to the Israelis’ during the Six-Day War. Aircraft from the *Kitty Hawk* immediately put together a strike and attacked Bai Thong again later that afternoon.

If the VPAF had held all the advantages on 27 April, the reverse was true on 6 May: the VF-114 Phantoms were F-4Js, with better radar and radar-warning receivers than VF-51’s F-4Bs, less smoky engines, and best of all, had Chief Nowell on Red Crown control duty. Piloting the F-4Js was Lieutenant Robert Hughes and Lieutenant (jg) Adolph Cruz in the lead aircraft, with Lieutenant Commander Kenneth Pettigrew and Commander John Pitson flying their wing; Hughes and Pettigrew were Top Gun graduates. Some time after taking up their TARCAP position near Tam Diep, Nowell vectored them due west against a contact. At fifteen miles, Hughes had the contact and throttled back to reduce both their speed and smoke. They spotted four MiG-21s passing below them a few moments later, heading into the setting sun and a low haze. This made them easy to see, and the two F-4s got behind the MiG section, Pettigrew reporting to Hughes that he was covering his rear quarter. The first warning the MiGs apparently had was when Hughes fired a Sidewinder. For the fourth MiG in the section, this was too late: it went down, mortally wounded. Hughes then selected the next MiG in line, but this MiG evaded his first two Sidewinder shots. As his third shot slightly damaged the MiG-21’s tail, Hughes saw another Sidewinder fly past and destroy the MiG; Pettigrew, after seeing Hughes set up for a second victory, remarked to Pitson, “That SOB isn’t going to get the next one too,” cut the MiG’s second evading turn off, and fired. The Vietnamese pilot was lucky and ejected from the fireball, and his parachute nearly snagged on Pettigrew’s left wing. The engagement had

taken less than a minute, and the two Phantoms, advised by Nowell that the other two MiG-21s had circled around behind them, went low and outran them.<sup>228</sup>

By 8 May, plans were already in motion to greatly expand the American air war against North Vietnam, but the aircrews in Southeast Asia were not yet aware of it. In the meantime, a joint USAF/Navy strike was scheduled on a large truck park near Son Tay, northwest of Hanoi, the strike receiving one of the stranger codenames of the war, "Fresh Bath Alpha." While the USAF put a MiGCAP almost literally on top of Noi Bai, the Navy used its F-4s to escort its own strike aircraft. Among the escorts were two F-4Js of VF-96, crewed by Cunningham and Driscoll, with their usual wingman crew, Grant and Sullivan. As the force headed north, Cunningham's section, as it had some months before, was forced to seek cover behind karst ridges to avoid SAM launches and radar-guided antiaircraft fire. Red Crown had also detected MiGs, which were also using the terrain to avoid detection from American radars. As the two F-4Js turned back towards Yen Bai from the north, vectored towards four MiGs, three events happened in rapid succession: the Phantom crews lost contact with Red Crown, they flew over an undercast, and Grant either sighted a MiG-17 or simply had a bad feeling about the situation, again all too much like Souder and Molinare's a few weeks previously. In any case, he ordered Cunningham to "in place port...go!" Cunningham instantly obeyed, broke hard left and climbed, coming back around to intercept the MiGs. One MiG-17 was instead closing on Grant's F-4. Cunningham called out, "Brian, you've got a MiG-17 on your tail!"

"What?" Grant replied, having lost sight of the MiG, assuming he had ever seen it in the first place.

"He's shooting—get rid of your centerline tank, unload and outrun him!" Grant dropped the large centerline external fuel tank and outdistanced the MiG pilot, who fired his cannon and missed by a wide margin. (Cunningham later related, "He must have been last in his class in gunnery.") Abruptly, the VPAF pilot switched tactics and fired off a K-13 Atoll, which surprised both Navy crews, who had been briefed that the MiG-17s did not carry missiles. Cunningham shouted a warning, and Grant evaded. Cunningham fired a Sidewinder without a targeting solution to distract the MiG pilot. Just then, Driscoll spotted two

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<sup>228</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers 1972-73*, pp. 16-25. "Viper" Pettigrew went on to become a Top Gun instructor, and had a cameo role in the movie *Top Gun* as the "older man" Kelly McGillis

more MiG-17s going over their heads; these aircraft shortly dived in behind Cunningham and missed with another Atoll. Cunningham continued his pursuit of the first MiG-17, guessing correctly (and showing excellent situational awareness) that he would have time to destroy his target, then turn and engage his pursuers. He shot down the first MiG-17 with a Sidewinder, and after briefly watching it crash into a ridge, turned in an attempt to “drag” the MiGs behind him for Grant to shoot at. However, the MiGs were too close and Grant too far away to help, and after evading another Atoll, Cunningham found himself in a most unenviable position: trapped between two MiG-17s. In a desperate attempt to evade, Cunningham snap-rolled into a hard turn, so tight that inspection panels were ripped from the aircraft and both flaps broken by the extreme stress placed on the airframe. Even this did no good: the MiGs stayed with him. Calling for help, he climbed into the sun, hoping it would spoof any heat-seeking Atolls fired at him. Luckily, Grant had arrived, and the MiG-17s disengaged, diving into the clouds. The two F-4 crews had enough of combat as well and headed back for the *Constellation*, but not before Cunningham, on a lark, blew up a truck with one of his remaining Sidewinders. Returning to the carrier to quite a welcome—Cunningham and Driscoll now had two MiGs to their credit—their F-4 would be out of action for some time, because of the damage Cunningham’s desperate maneuver had done.<sup>229</sup>

The USAF also got MiG kills on 8 May, in an action that was detailed in both sides’ postwar records. The 925<sup>th</sup> Fighter Regiment of the VPAF, flying MiG-19s, had put up a combat air patrol that morning over their base at Yen Bai, with four MiG-19s north of the base (piloted by Nguyen Ngoc Tiep, Nguyen Duc Tiem, Pham Hung Son, and Nguyen Hong Son) and another four south (Nguyen Ngoc Tam, Nguyen Thanh Long, Phung Van Quang, and Nguyen Manh Tung). They were also told to expect support from the 921st’s MiG-21s at Noi Bai. Around 8 AM, North Vietnamese radar detected four F-4Ds headed towards Yen Bai, a MiGCAP flight from the 432<sup>nd</sup> Wing. The northern group of MiG-19s headed southwest to intercept, and two MiG-21s were scrambled in an attempt to draw the F-4s towards them. Both the MiG-19s and the F-4 group sighted each other at the same time, with both sides splitting into two-aircraft elements.

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initially chooses over Tom Cruise.

<sup>229</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers 1972-73*, pp. 25-29; Drendel, p. 64.



Nguyen Duc Tiem and Nguyen Ngoc Tiep went after one F-4, the former having to evade missiles from their target's wingman. As the F-4 dove left into a cloud, Tiep fired his cannons and missed as he too entered the cloud; when he emerged on the other side, he sighted two more F-4s (most likely the same section he had been pursuing) and once more opened fire. He later reported hitting the F-4 and watching one of its crew eject.

Nguyen Hong Son and Pham Hung Son came under attack from the other section of F-4s after firing off a few desultory rounds as the engagement began. As they twisted through the clouds, Hong Son tried to jettison his external tanks, but accidentally pulled the wrong lever—releasing his brake chute instead, meant to slow down the aircraft when landing. At the same time, the F-4 behind him, piloted by Major Barton Crews and Captain Keith Jones, Jr., fired a Sparrow. Neither American saw the Sparrow hit, but Jones saw the brake chute drift by and assumed the MiG pilot had ejected, especially when Hong Son finally was able to drop his tanks and made a hard dive into the clouds. Crews and his wingman overshot Hong Son (neither having seen him in the clouds), and the Vietnamese opened fire. He saw flames shooting from the rear of the lead Phantom as both disappeared into the clouds. Both sides at this point disengaged.

As a result of this engagement, Tiep, Hong Son, and Crews/Jones all claimed a kill. Given that Hong Son's and Crews' after-action reports are almost identical, it has to be assumed that none of the three were correct. VPAF records report that all the MiG-19s returned safely, while USAF records report the same of the Phantoms. Hong Son's brake chute was yellow, and both Tiep and Jones reported seeing a yellow parachute, each man assuming wrongly that it was a parachute of an ejected pilot. Crews' wingman reported seeing the "stricken" MiG-19 roll over in an inverted dive into the clouds—exactly what Hong Son had done. Crews and his wingman had engaged their afterburners to escape into the clouds, which would explain why Hong Son saw flames shooting from the rear of the Phantom he was shooting at. Never was the fog of war so opaque as near Yen Bai on 8 May 1972.<sup>230</sup>

No such controversy exists over the third and last American kill of the day. As the two MiG-21s of the 921<sup>st</sup> approached the strike force near Yen Bai to help the 925th's MiG-19s, they were detected first by Red

Crown and then by the second MiGCAP flight, led by Robert Lodge, flying with his customary backseater, Roger Locher. Locher locked on to the second MiG-21 in line, flown by Vo Si Giap. Lodge fired two Sparrows, both of which guided and hit, Giap apparently unaware that he was even under attack until the missiles struck. As his burning MiG-21 was directly over the village of Tuyen Quang, Giap elected to attempt an emergency landing at a clearing away from the village. As he approached the clearing, children from a nearby school streamed out to wave at his aircraft. Giap turned away from the field. The MiG exploded a moment later. As Locher spotted a parachute with a person hanging motionless beneath it as they left the area (having unsuccessfully engaged Giap's flight leader, Pham Phu Thai), it is possible that Giap ejected a fraction too late or was ejected from the exploding aircraft; either way, his action probably saved the schoolchildren at the cost of his own life.<sup>231</sup>

### *Linebacker*

Kissinger had met with Dobrynin and Brezhnev from 20-24 April, despite misgivings in Washington that such a meeting might not take place—as if confirming McNamara's worst fears, the 16 April Haiphong raid had accidentally slightly damaged four Soviet ships in harbor. Nothing was said about the ships, however, nor did the bombing cease. What the Kissinger trip accomplished was to have Brezhnev persuade the North Vietnamese to agree to a negotiating session on 2 May. Kissinger also mentioned that NVA troops in South Vietnam prior to the Easter Offensive's beginning would be allowed to remain if Hanoi would agree to a negotiated settlement, but if Hanoi refused to negotiate, the United States would respond with force. Brezhnev kept his end of the bargain, and Kissinger met with Le Duc Tho as scheduled.

At the 2 May "secret" meeting in Paris, Le Duc Tho and Foreign Minister Xuan Thuy appeared to Kissinger as being arrogant. They refused any sort of negotiated settlement until Thieu resigned and all American troops were withdrawn from South Vietnam. If they were arrogant, they had a good reason to be:

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<sup>230</sup> Hanak, p. 90; Toperczer, MiG-17 and MiG-19 Units, pp. 59-60.

<sup>231</sup> Hanak, pp. 90-91; Toperczer, MiG-21 Units, pp. 49-50.

Quang Tri, South Vietnam's northernmost provincial capital, had fallen; An Loc, just north of Saigon, was under siege; Kontum in the Central Highlands was in danger of falling as well. Though the ARVN was doing better than many experts had believed they would, the initiative was still in the hands of Hanoi. Kissinger passed on Nixon's instructions—"settle or else"—but they were brushed aside. The meeting broke up after three hours, and Kissinger returned to Washington.

Both Nixon and Kissinger had assumed that the North Vietnamese would be intransigent, and so planning had already begun on what was to become Operation Linebacker, so named because of Nixon's love of football. Under the advice of Major General Alexander Haig, Nixon's senior military advisor, and the Joint Chiefs, Linebacker was to strike all military targets in North Vietnam in an intense period of aerial bombing and the interdiction of all supply routes into North Vietnam. Though some targets were still off-limits—government buildings in downtown Hanoi and targets near the Chinese border—Linebacker was a clear departure from the gradualism of Rolling Thunder. Most importantly, Operation Pocket Money would be launched from 9 May, the day before Linebacker formally began. This was the mining of the harbors of Haiphong, Cam Pha, Hon Gay, Thanh Hoa, and Vinh, with the mines set to activate at 6 PM local on 11 May, giving time for foreign-flagged ships to leave harbor. Nixon announced the beginning of the operation in a televised news conference on 8 May. Fears that the Soviets might do more than a formal protest were unfounded: when Kissinger asked Dobrynin if the planned Nixon-Brezhnev summit should continue to go forward, Dobrynin agreed and added, "You have handled a difficult situation uncommonly well." With the Soviet Union and China remaining on the sidelines, and initial public reaction to Linebacker favorable, Nixon was free to prosecute the war as he saw fit. Linebacker would continue until Hanoi agreed to a ceasefire and American POWs were released. "I intend to stop at nothing to bring the enemy to his knees," Nixon told Kissinger. It was melodramatic, but fairly apt. Linebacker was scheduled to begin on 10 May, and would initiate the most intense 24-hour period of air combat of the Vietnam War.<sup>232</sup>

Linebacker opened very early on the morning with US Navy ships shelling coastal targets near Haiphong. About 7:30 AM, carriers *Constellation*, *Coral Sea*, and *Kitty Hawk* began launching aircraft, their target oil storage facilities at Haiphong, Kien An airfield, and a bridge at Hai Duong. Of the over a hundred aircraft in the air, 69 were F-4Bs and F-4Js assigned to CAP duties, though some also carried Rockeye cluster bombs for flak suppression.

Two VF-92 F-4Js, call sign Silver Kite and flown by Lieutenants Austin Hawkins and Charles Tinker, and Lieutenant Curt Dose and Lieutenant Commander James McDevitt, took up a TARCAP position northeast of Haiphong. As the morning strikes completed, no MiGs came up to intercept. As the force left the area, Red Crown—once more Larry Nowell—radioed a warning that MiGs were 35 miles northeast of them, around Kep. Though neither Hawkins nor Dose could detect anything, this fit in well with Hawkins' plan of action for 10 May: as he was nearing the end of his tour, he had yet to see, let alone engage a MiG. Hawkins planned on making an unauthorized look around Kep to begin with, and this gave him an excuse.<sup>233</sup>

The two Phantoms arrived near Kep and found the sky empty, even from antiaircraft fire. There were MiGs, but they were on the ground; while Linebacker had suspended the off-limits status of MiGs on the ground, Navy Phantoms were not equipped with guns, and the Sidewinder (Randy Cunningham's "truck kill" notwithstanding) could not home on parked aircraft. McDevitt then spotted two MiG-21s accelerating to take off. These MiG-21s were part of the 921<sup>st</sup> Regiment, flown by veteran Dang Ngoc Ngu (who had first started flying in 1966) and a newer pilot, Nguyen Van Ngai. Hawkins would get his fight.

The two F-4Js rolled in and then streaked down Kep's runway, on the tails of the MiG-21s, whose landing gear was just retracting. Hawkins, in the lead, called out, "You take the one on the right and I'll take the one on the left!" They dropped their tanks (which blew up spectacularly behind them), and Dose, sighting on the trailing MiG, fired two Sidewinders. One, possibly both hit and the MiG-21 fireballed, then pitched

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<sup>232</sup> Clodfelter, pp. 154-158.

<sup>233</sup> Jeffrey Ethell and Alfred Price, *One Day in a Long War: May 10, 1972, Air War North Vietnam*. (New York:

end over end into the ground, killing Ngai. Dose then switched targets and fired a third Sidewinder, even as Hawkins fired three missiles of his own. All three detonated short of the MiG, possibly from fratricide. Hawkins fired his last Sidewinder, but this one hit the ground as Ngu made a hard right break, dropping his tanks—either the tanks or the close detonation of four Sidewinders slightly damaged his MiG. Hawkins barely stayed on the rear of the nimble MiG-21. At this point, two more MiG-21s took off and entered the fray, flown by Le Thanh Dao and Vu Duc Hop. Dose, who had gone high to try for a Sparrow shot to distract Ngu, told Hawkins they should “bug out,” but Hawkins replied, “No, I can get this guy.”

The second MiG-21 made a desultory pass at Hawkins’ F-4, while Ngu appeared to be leading him towards Kep’s antiaircraft batteries, which were now alerted and firing. Hawkins reluctantly decided to disengage, climbed, and rolled out into a split-S, heading for the Gulf of Tonkin. Ngu twisted in behind him, pursued halfway to the coast, and fired an Atoll that missed. The two F-4s successfully returned to the *Constellation*, while Ngu and the other MiG made it in to Noi Bai. Ngu claimed Hawkins’ F-4 as a kill, but he was in error; Toperczer lists Ngu’s kill as a USAF F-4E of the 432<sup>nd</sup> TRW, but no USAF Phantoms were as yet in the area—Ngu landed at Noi Bai at 9:12 AM, while the first USAF strike did not arrive in Pak Six until thirty minutes later. Dose and McDevitt also identified their opponents as MiG-21MF versions, which only the 921<sup>st</sup> flew. Even without the kill, Ngu’s experience in air combat had saved his life: he had evaded no less than five Sidewinders.<sup>234</sup>

The USAF now entered the battle. Having taken off from Thailand around 8:30 AM, 32 F-4Ds and internal gun-equipped F-4Es were targeted at the infamous Doumer Bridge in downtown Hanoi, and the Yen Vien rail yard north of the city. The Doumer Bridge had been dropped before during Rolling Thunder, at a heavy price, but this time the USAF had switched tactics to finally destroy the bridge: the Phantoms carried Paveway laser-guided bombs. Preceding the strike aircraft were eight F-4Ds that were to drop “chaff,” pieces of aluminum foil that would blanket the North Vietnamese radars with false echoes; four F-105G Wild Weasels, and eight F-4Ds of Oyster and Balter Flights for MiGCAP duties.

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Random House, 1969), pp. 19-20, 30-34, 41-43.

<sup>234</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, pp. 30-34; Ethell and Price, pp. 41-47;

Oyster Flight was made up of Robert Lodge and Roger Locher in the lead, with their wingman crew consisting of Lieutenant John Markle and Captain Stephen Eaves. Oyster Three was Captains Richard Ritchie and Charles deBellevue; Oyster Four was Lieutenant Thomas Feezel and Captain Larry Pettit. With the exception of Feezel, every one of these men would score a MiG kill by the end of the war; Lodge and Locher, of course, already had two. Before they crossed into North Vietnam, the MiGCAP had already run into trouble: Oyster Four's radar had gone down, and two of Balter Flight had to abort due to mechanical problems. Nonetheless, Lodge went forward with the plan he had devised the day before: Balter Flight was to go out ahead of Oyster, which would wait behind Balter and at low level to ambush any MiGs that came out to intercept Balter. Lodge was taking a page from his enemy's book. Lodge had also placed Oyster into an "expanded box" formation, which was more tactically flexible than the "welded wing" the USAF traditionally employed. The box formation would allow the two sections to fight on their own and yet give mutual support, while maintaining enough separation that a MiG section would not be confident of taking all of them on at once. The Navy had been using expanded box for some time.<sup>235</sup>

If Lodge represented Hartmann's idea of a "head" pilot, then Richard Ritchie—Steve to his friends—was a "shoulders" pilot in the mold of Robin Olds. Ritchie was an Air Force recruiter's dream: good-looking, dedicated, smart, and affable, but with the somewhat egotistical self-confidence that many fighter pilots have. He habitually wore cologne, though most pilots did not, as the smell would instantly give his position away if he had to bail out into the jungle. Ritchie simply commented that he was not going to get shot down. He had already completed 195 missions flying in the "fast FAC" (forward air control) mission over the Ho Chi Minh trail, and had been the youngest instructor at Fighter Weapons School in Nevada, where he had met Lodge. When Lodge had arrived at Udorn and begun setting up the 555<sup>th</sup> to destroy MiGs, he had specifically requested Ritchie be allowed to join him. (John Markle, flying Oyster Two on 10 May, had been similarly recruited by Lodge after Markle consistently volunteered for night flights over Laos.)

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Toperczer, p. 51.

<sup>235</sup> Ethell and Price, pp. 49-54.

Flying as Ritchie's WSO on 10 May was Charles deBellevue, who was Locher's roommate and had much the same reputation for skill and professionalism. Despite being first rejected by the Air Force Academy and then washed out of pilot school, deBellevue persevered and became a WSO, after what he described as "dogshit training" that rarely emphasized the air to air mission. Like Ritchie, deBellevue was a veteran of the fast FAC corps, and with 120 missions, was second only to Locher in experience. In essence, Oyster Flight was very much a "squadron of experts."<sup>236</sup>

As Oyster and Balter flights crossed into North Vietnam, the Disco EC-121 detected MiGs taking off from Noi Bai, flying towards Tuyen Quang, at the northern end of Thud Ridge and the site of Lodge and Locher's kill 48 hours before. Two minutes later, Nowell on Red Crown began keeping Oyster informed of the MiGs' movements. North Vietnamese radar obviously was doing the same, for the MiGs began alternately moving towards and away from the MiGCAP. Finally, at 9:42, the MiGs headed straight at the MiGCAP. As Balter fell back to provide high cover, Oyster accelerated; at twelve miles, all three Oyster F-4s with working radars locked on to four targets in front of them. DeBellevue, alerted by his Combat Tree equipment detecting the MiG-21's distinctive IFF "squawk," radioed, "He's squawking MiG! He's squawking MiG! Stand by to shoot!" The two forces met head on.

Lodge fired first, firing two Sparrows from eight miles away, as did Markle. Ritchie fired a fifth missile, but it simply fell off the aircraft and failed to ignite. One of Markle's did the same, and one of Lodge's prematured, but the remaining two struck their targets. Oyster Flight witnessed two fireballs appear, Markle calling out "Oyster Two's a hit!" Lodge added, "I got one!" Locher spotted Markle's kill cartwheeling underneath their F-4, its right wing missing; a moment later, the MiG-21 they had hit flashed past on the left, missing its left wing, the pilot having already ejected.

Oyster closed in on the remaining two MiG-21s, which turned hard left. Lodge made an equally hard right turn and nearly collided with the lead MiG, coming up two hundred feet behind them. Too close for missiles, Lodge pulled his throttle back, intending to let the MiG edge out. Markle had been thrown off Lodge's wing by the sudden turn and was trying to get back in position, whereas Ritchie and Feezel were

pursuing the other remaining MiG-21, which had reversed its turn and was heading away. None of the F-4 crews saw the arrival of two MiG-19s of the 925<sup>th</sup> Regiment climb out of Yen Bai.

The lead MiG-19 in this section, flown by Nguyen Manh Tung, flew past Lodge's F-4. Markle saw Tung and yelled, "Okay, there's a bandit—you got a bandit at your ten o'clock [forward and to the left], Bob, level!" As the MiG-19 turned to attack, Markle added, "Reverse right, reverse right, Bob, reverse right! The bandit's behind you!"

Lodge's response was "Oyster One padlocked," which meant he was setting up for a Sparrow shot. Both he and Locher were concentrating fully on the MiG-21; Locher was actually filming the combat with a handheld camera. Neither had seen the MiG-19 behind them or acknowledged Markle's warnings. "He's firing, he's firing at you!" Markle shouted, and Tung's thirty-millimeter cannon shells tore into the F-4's right engine, which almost immediately exploded. At first, Locher thought they had collided with the MiG-21. As Tung fired again, both he and Lodge finally realized what had happened. The F-4 yawed right, the hydraulic flight controls failed, and the Phantom pitched over on its back, burning. Locher told Lodge, "Hey, Bob, we're passing eight thousand feet. It's getting awful hot back here; I'm going to have to get out."

Lodge looked back at Locher and said, "Why don't you eject, then?" Locher did so, but Lodge did not. Either he continued to attempt to recover the F-4 from its death spiral, or simply rode the aircraft down. Lodge had often told Locher that he did not want to be taken alive as a prisoner, as he knew too much about F-4 tactics and equipment, namely Combat Tree, and for personal reasons.<sup>237</sup> As Tung and his wingman, Phung Van Quang, exited the area, Ritchie finished off the MiG-21 he was pursuing with two Sparrows. The pilot ejected, tumbling past an astounded deBellevue's canopy.<sup>238</sup>

Having lost Lodge and Locher, Oyster Flight rejoined and sped towards Laos, low on fuel and missiles. As they did so, they were briefly pursued by a MiG-21MF which turned away before they reached the Laos border. If it was a MiG-21MF, it may have been one of the two MiG-21s that had taken off from Noi Bai

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<sup>236</sup> Sherwood, pp. 217-219, 221, 226-228.

<sup>237</sup> Sherwood, pp. 229, 233.



earlier to assist the MiG-19s near Tuyen Quang. These two MiGs were in turn engaged by Balter Flight: Major Dean White, flying the lead Phantom, spotted a MiG-21 passing left to right and turned to attack, hoping the MiG would level off his turn. The VPAF pilot did not, and White ended up closing too fast; both White's Sparrows missed. He tried for a Sidewinder shot, but while he was performing the necessary switch actions (which required the pilot to look inside the cockpit), the MiG-21 had disappeared from sight. While White had been going after his target, his wingman, Captain William Ridge, engaged a second MiG-21, but he also missed with a Sparrow as the MiG reversed. The two passed canopy to canopy, close enough for the two Americans and one Vietnamese to see each other plainly, then Ridge noticed a MiG-21 going after White. Ridge yelled a warning, and White broke right just in time to avoid two Atolls. The MiG flew off and the sky was suddenly empty, but advised that there were MiG contacts all over the area by Red Crown and getting low on fuel, Balter Flight also headed for Laos. Before they got there, they ran head on into three MiG-19s, almost certainly the ones who had shot down Lodge and Locher earlier—Tung, Quang, and Nguyen Thanh Long, who had taken off later than the other two. Ridge hastily fired a Sparrow that missed. Both Ridge and Quang, his intended target, turned and climbed, but the MiG-19 turned inside the F-4 and got off a few cannon shots. Ridge throttled up to full afterburner and both he and White finally got out of North Vietnam.<sup>239</sup> None had seen Locher's parachute, only the MiG-21 pilots that had been shot down by Lodge and Ritchie, and so it was generally assumed that Locher had died with Lodge in the crash. However, he had survived, and managed to evade capture for an incredible 23 days. He managed to contact a F-4 flight that flew over his position, and on 2 June, was rescued, the only American pilot to have remained uncaptured for that length of time in North Vietnam.<sup>240</sup>

The strike on both the Doumer Bridge and the Yen Vien rail yard had gone off without a hitch or loss; the Doumer Bridge had a span dropped by the precision bombs and would be out of action for the rest of the war. As the force egressed Pak Six, their escorting F-4Es flew past Yen Bai to see if any MiGs were

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<sup>238</sup> Ethell and Price, pp. 55-62.

<sup>239</sup> Ethell and Price, pp. 74-75.

<sup>240</sup> For an account of Locher's evasion and eventual rescue, see Sherwood, pp. 235-243. In a remarkable coincidence, the F-4 crew that heard Locher's weak transmission on 1 June was Ritchie and deBellevue. Locher

around. They were: Pham Hung Son and Nguyen Hong Son, veterans of the wild battle two days before, climbed out of the jungle and attacked Harlow Four, the last Phantom in the flight, flown by Captains Jeffrey Evans and Dennis Wilkinson. One of the other Phantoms misidentified the Phantom under attack as Harlow Three, and so Evans and Wilkinson probably never saw Hung Son open fire with his cannon, chopping into the right wing. The F-4 snapped into a dive and went straight into the ground, killing both men. Harlow Lead (names unknown) fired off a Sidewinder and two Sparrows at the escaping MiG-19s, but none were seen to hit. However, Hong Son reported being hit a few moments after Hung Son shot down Harlow Three, so Harlow Lead may indeed have hit, or, as VPAF records surmise, he was struck by a SAM fired by his own side. Hong Son had to make a high-speed ejection and was badly injured, dying a few hours later.<sup>241</sup>

The MiG-19s returned to Yen Bai, nearly out of fuel; as a result of this and the fact that there were still American fighters in the vicinity (the strike hitting Hanoi), the MiG-19 pilots had to make faster landing approaches than normal. Long and Hung Son landed without any trouble, and though Quang went off the end of the runway, he too was safe. Another pilot, Nguyen Duc Tiem, also overshot the runway and wrecked the MiG, but he climbed out unhurt. Unluckiest of all was Tung, the pilot who had shot down Lodge and Locher. His MiG-19 also went off the end of the runway, but one of his wings snagged on the ground. The aircraft tumbled and exploded, killing him.<sup>242</sup> No mention is made in VPAF records of the fate of the MiG-21 pilots Oyster Flight fought (in fact, apparently no mention is made of that fight at all), but of the two MiGs fought by Balter Flight, one pilot did claim shooting down a F-4, most likely White's, before being killed by an errant SAM launched at the Phantoms. The other pilot made it back to Noi Bai, with sixteen holes in his aircraft from "twenty millimeter fire." As Balter was flying non-gun equipped F-4Ds, it is quite possible that the holes came from one of the Sparrows exploding close to the aircraft, or he was hit by friendly fire as well. One of the bomber F-4 backseaters (Lieutenant Richard Bates) also reported seeing MiGs briefly engage the Wild Weasel F-105s and had a MiG-21 go after his F-4, but that

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went on to command the first operational F-117 stealth fighter squadron.

<sup>241</sup> Ethell and Price, pp. 94-95; Toperczer, MiG-17 and MiG-19 Units, p. 62.

MiG never fired, so the MiG-21s mentioned in VPAF records were most likely the ones who went after Balter Flight.<sup>243</sup>

*The Navy's Afternoon Strikes, 10 May 1972*

Already 10 May had been one of the busiest days in the history of the war, but the day's actions were only half over. At 12:20 PM, the US Navy launched another Alpha strike against Haiphong from the same carriers involved in the morning strike. Seventy aircraft, among those the TARCAP and FORCAP Phantoms of VF-51 and VF-96, were sent against rail sidings near Haiphong and bridges at Hai Duong and Cam Pha. Dose and McDevitt had been simultaneously congratulated for their MiG kill of the morning and dressed down for "trolling for MiGs." The other Phantom crews were ordered to stay with the strike force, with the exception of if they or any other escort aircraft had been engaged by MiGs or if enemy aircraft were sighted in the target area. (Dose and McDevitt flew on the afternoon strike, and were told that if their Iron Hand A-7 charges did not come back, neither should they.) The USAF's strikes had fully alerted the VPAF, and the pilots were told that they were likely to encounter MiGs. Perhaps for this reason, Randy Cunningham and William Driscoll were added to the force's flak suppression flight: their commanders knew they had a "run" going and wanted them to score again. Flying as their wingman crew was Grant and Sullivan, the same crew they had flown with on 8 May.

As the Alpha strike crossed the North Vietnamese coast around 1 PM, antiaircraft fire and SAM missiles responded with heavy fire. The plan was that the TARCAP F-4s would take up position north of Hai Duong to shield against MiGs, while the force would split into two units and strike the bridge from two sides. A navigational error led the entire force to attack from the same direction, robbing the aviators of surprise and almost guaranteeing someone would get hit.

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<sup>242</sup> Toperczek, MiG-17 and MiG-19 Units, p. 62.

<sup>243</sup> Toperczek, MiG-21 Units, p. 52; Ethell and Price, p. 88.

Cunningham and Grant dropped their Rockeye cluster bombs on a warehouse near the target and were climbing away when Cunningham suddenly spotted several MiG-17s coming in from the north—elements of the 923<sup>rd</sup> Regiment from Kep, many of which were new pilots. Two of them went after Cunningham and fired their cannon, but Cunningham pushed his F-4's nose down, then suddenly pulled up, abruptly shedding airspeed. The MiGs overshot, and in afterburner, presented a perfect Sidewinder shot. Cunningham dispatched one MiG-17 in short order, then found two more were on his tail. He attempted to “drag” them for Grant as he had two days before, but as Grant maneuvered for a shot, he too came under attack from no less than four MiG-17s. By using their Phantoms’ speed advantage, they were able to get away from the MiG-17s in a hard climb. As he looked down on the developing fight, Cunningham saw at least eight MiG-17s in a Lufbery defensive circle, Phantoms mixed in, and four MiG-21s at high altitude. When one added in the A-6 strike aircraft and A-7 Iron Hand aircraft, there were forty aircraft flying in a three mile radius of Hai Dong.<sup>244</sup>

A fellow member of VF-96, Lieutenant Michael Connelly and his RIO, Lieutenant Thomas Blonski were also involved in the “furball” over Hai Duong. Connelly, on TARCAP duties, heard an A-7 pilot frantically calling for help, and spotted the American aircraft below him, two MiG-17s hot on his tail. According to VPAF records, the MiG-17s were flown by Nguyen Van Tho and Ta Dong Trung. Connelly set up for a Sparrow shot, but his radar picked that moment to go down completely, and he switched to Sidewinders. He fired a missile, but Tho, chasing the A-7, saw the missile and broke away; Trung had broken off the moment he spotted Connelly’s F-4. While the Sidewinder missed, it achieved its purpose, and the A-7 pilot made it out of the target area unscathed.

Connelly tried to find the MiG that had broke away from the A-7, but the sky seemed filled with them; he later estimated there might be as many as twenty MiGs in the air. Connelly spotted a MiG-17 in a right turn and went after it, throttling back to let the MiG edge out. When the MiG leveled out, its pilot apparently

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<sup>244</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, p. 40; Ethell and Price, pp. 109-110.

with no idea Connelly was behind him, the American fired another Sidewinder. This one hit, destroying the MiG-17. He then went looking for another target.<sup>245</sup>

Meanwhile, Cunningham and Grant dived back into the fray to attack the Lufbery circle of MiG-17s. As they started in, another VF-96 Phantom flashed by, so close that Cunningham nearly collided with it: it was the squadron's executive officer, Lieutenant Commander Dwight Timm and his RIO, Lieutenant James Fox. Behind Timm were two MiG-17s and a single MiG-21, the lead MiG-17 firing. Cunningham engaged the lead MiG-17, but hesitated to fire a Sidewinder—it might as easily track on Timm's F-4 as the MiG-17. He radioed Timm to break right, but Timm remained in a left turn, not seeing the second MiG pilot lining his guns up. Finally, Cunningham called out, "Showtime [VF-96's callsign], turn your aircraft and unload [go to full speed] or you'll be dead!" Timm finally saw the second MiG-17 and executed the required right turn and acceleration. Now clear to fire, Cunningham loosed a Sidewinder that hit; the pilot ejected. This was likely Nguyen Hang, whom Nguyen Van Tho had seen being pursued by two F-4s (Cunningham and Grant). Tho warned Hang and his wingman (not named in VPAF records) of the danger, but Hang was struck by a missile and had to bail out. It was later claimed by the North Vietnamese that Hang was shot in his parachute, but this is extremely unlikely—Navy F-4s did not carry guns, either internal or external, and the A-7s had exited the area by this time. More likely is that Hang was killed by the intense antiaircraft fire or by militia when he reached the ground; the local populace had been told that anyone in a parachute was an American, as the VPAF never admitted its losses during the war.<sup>246</sup>

Timm still had two MiGs behind him, and although the MiG-21 broke away from the fight, the other MiG-17—probably Hang's unnamed wingman—continued to fire on Timm's F-4. Grant now lined up for a shot, but he had competition from yet another member of his squadron, the F-4 flown by Lieutenant Steven Shoemaker and Lieutenant (jg) Keith Crenshaw. Shoemaker fired a Sidewinder, but was too close; the MiG-17 nonetheless broke off his attack. Another midair collision almost occurred between Shoemaker and

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<sup>245</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, pp. 35-36; Ethell and Price, pp. 111-112, 114.

<sup>246</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, pp. 41-42; Ethell and Price, pp. 114-116; Toperczer, MiG-17 and MiG-19 Units, p. 55.

Grant; Shoemaker evaded the other F-4 and headed north. At about the same time, Connelly and Blonski, two thousand feet below their comrades, surprised another MiG-17, Connelly firing his last Sidewinder. At first he thought he had missed, but then Blonski said, "Wait a minute, his tail's gone!" The Sidewinder had torn the tail from the MiG, and the pilot ejected.<sup>247</sup> Four MiG-21s briefly attacked Timm, Cunningham, and Grant, but Cunningham turned into them and the MiG-21s left the area.

This may have been the flight that included the 927<sup>th</sup> Regiment's Le Thanh Dao and Vu Duc Hop. If it was, then after Cunningham drove off the flight, Dao and Hop went on to engage two Phantoms in roughly the same area. One F-4J turned left while the other climbed; Hop later reported that he went after the climbing F-4, fired a single Atoll, and hit. He then wanted to engage the second F-4, which was among heavy flak bursts, but his ground controller ordered him to head for home—the VPAF had already lost two MiGs to friendly fire that day, and did not want to add another. It is quite possible that this was the VF-92 section led by that squadron's executive officer, Commander Harry Blackburn and his RIO, Lieutenant Stephen Rudloff. Their aircraft was shot down in the same area and under very similar circumstances to the ones Vu Duc Hop described, but they were the aircraft that was in the turn, not the one that climbed (Rudloff recalls seeing their wingman above them). Blackburn died in the crash, while Rudloff successfully ejected and was taken prisoner; after he was released a year later, he stated that they had been hit by 85 millimeter flak, which Hop had seen, as had Rudloff's wingman crew (Lieutenants Rodney Dilworth and Gerald Hill) and Driscoll some miles away. In any case, while it is possible that Hop was indeed responsible for Blackburn and Rudloff being shot down, it is not likely. More likely, Hop may have hit Dilworth's F-4, which struggled back to the *Constellation* on one engine and several dozen holes in the fuselage, reportedly from flak damage. Both Dilworth and a nearby A-7 pilot reported seeing two MiG-21s in the area.<sup>248</sup>

As Rudloff drifted down in his parachute and Dilworth was trying to keep himself and his backseater from joining him, Shoemaker made one more pass through the battle area, looking for MiGs. He found one trailing two F-4s heading for the Gulf of Tonkin, but the MiG broke off before he could radio a warning.

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<sup>247</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, p. 37; Ethell and Price, p. 117.

<sup>248</sup> Ethell and Price, pp. 118, 120; Toperczer, MiG-21 Units, p. 52.

As the MiG evidently headed for home, Shoemaker dived on it and fired a Sidewinder. The MiG-17 exploded and the pilot ejected; Shoemaker, after evading another MiG-17 and having lost all his navigational equipment except for a single compass, returned to the carrier. His victim was possibly Nguyen Van Tho, who reported engaging Phantoms and then running out of ammunition. As he turned to head back to Kep, he was hit and had to bail out; luckier than Hang, Tho survived to fight again.<sup>249</sup>

The *Constellation's* aviators were not the only Navy Phantoms to score victories on 10 May. About the same time of the colossal air battle near Hai Duong, two of VF-51's F-4Bs, from *Coral Sea*, were being vectored to intercept more MiGs heading southeast from Hanoi. Flying as wingman to the lead Phantom were Lieutenants Kenneth Cannon and Roy Morris, Jr. Like Cunningham, Cannon was a Top Gun graduate, but he had additional experience: he had actually flown MiG-17s as part of the Have Drill project. The two F-4Bs headed north at two hundred feet, avoiding the SAMs and hoping to ambush the MiGs. However, before they reached the reported position of the incoming MiGs, Cannon spotted a MiG-17 only a mile in front of them. The pilot spotted the F-4s as well and made a hard turn to get away. Cannon's leader, Lieutenant Commander Charles Schroeder, roared in to attack. The MiG pilot was no novice, however: he executed a barrel roll, let Schroeder go past, and ended up behind the overeager American. Schroeder wisely kept his speed up and outdistanced the MiG pilot, which at first began to pursue, then apparently thought better of it and resumed his course towards Hanoi. Cannon now engaged and the MiG attempted a hard break, but was too slow—which was what Cannon, with his Have Drill experience, had anticipated. He fired a Sidewinder, and the MiG-17 exploded and rolled into the ground, Cannon flying through the debris. Having gone deep into North Vietnam, Red Crown ordered the two Phantoms home.<sup>250</sup>

In the confusion of the battle, Cunningham had lost track of his wingman and the other Phantoms, and suddenly felt very alone. As there were still several MiGs around, he decided that discretion was the better part of valor, and with two kills for the day, it was a good time to head back for their carrier. As they approached the coast, they spotted a single MiG-17 heading directly towards them. Cunningham,

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<sup>249</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers, 1972-73, pp. 48; Toperczer, MiG-17 and MiG-19 Units, p. 55.

remembering his Top Gun training and “hassling” with the instructors’ A-4s, told Driscoll, “Watch this, Willie. I’m going to scare the shit out of this gomer.” Cunningham went straight for the MiG, but abruptly realized that he was not in California fighting A-4s: the MiG-17 opened fire, cannon shells streaking past Cunningham’s canopy.

Cunningham climbed, figuring that the MiG would likely continue on for home, as MiGs in general, and MiG-17s in particular, rarely fought in the vertical plane. He looked out of the canopy and to his surprise, he was looking into the cockpit of the MiG-17: both were heading straight up, less than thirty feet apart, close enough for Cunningham to make out uniform details on the pilot. The MiG pilot let Cunningham edge out and dropped behind him, firing again as Cunningham rolled out at the apex of his climb. The American dodged the shots and dived, then pulled up into a hard climb, Cunningham thinking, “That son of a bitch is really lucky.” When the MiG-17 followed him once more into the climb, he thought, “Maybe this guy isn’t just lucky after all!”

Cunningham turned towards the MiG pilot, who reversed his turn. Both went into what is known as a “vertical rolling scissors,” where both opponents make a series of tight turns in order to force the other aircraft out in front, all the while losing airspeed. Predictably, the heavier F-4 would run out of energy first, the MiG would slip in behind, and Cunningham would have to evade another hail of shells. They went through the cycle one more time, but as they went into a third climb, Cunningham used another trick learned from Top Gun: he throttled his engines back to idle and dropped his speedbrakes. The MiG-17 suddenly shot out in front. Both aircraft pitched over, Cunningham fighting to keep the F-4 from stalling, and as he rolled out, spotted the MiG-17 heading away at full speed, its camouflage making it difficult to see against the ground; the ground’s heat also would confuse Sidewinder seekers. Cunningham fired one anyway, and to his surprise, it hit. The MiG-17 coasted directly into the ground and exploded, the pilot not ejecting. It was Cunningham and Driscoll’s fifth kill: they were now the United States’ first aces of the Vietnam War.

Cunningham spotted another MiG-17 approaching and remarked to Driscoll, “Here comes number six!” He began to engage when Connelly, coming back into the fight from the ocean, warned Cunningham of four

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<sup>250</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers, 1972-73, pp. 49-51.



MiG-17s closing in behind him, firing off a Sparrow to distract the MiGs. Connelly and Cunningham finally broke off the fight and headed for home, nearly running down a MiG-21 in the process.

Cunningham and Driscoll were not out of the proverbial woods yet, however: a moment after an EP-3B signals intelligence plane in Tonkin Gulf warned of a SAM launch, their F-4 suddenly was pitched on its side by a terrific explosion: they had been hit. Rapidly losing hydraulics, Cunningham managed to keep the F-4 in the air by making a series of rolls towards the ocean. When the Phantom finally began to come apart, he and Driscoll ejected. They were picked up by Navy helicopters and returned to the *Constellation* to a hero's welcome; indeed, their new status as aces was to dominate media reports and actually, for a time, push aside the news of the first successful day of the Linebacker operation.<sup>251</sup> Interestingly, in postwar VPAF records, MiG-21 pilot Le Thanh Dao would claim to have shot down Cunningham and Driscoll with a K-13 Atoll, and his account does jibe with some of Cunningham's and Connelly's; he was probably the MiG-21 the two F-4s had gone past on their way to the Gulf. Moreover, Cunningham's radar warning receiver, which should have warned of a SAM radar tracking them, never activated, which it would not if an infrared missile like the Atoll had been fired at them. However, the SAM warning was given almost immediately before Cunningham and Driscoll were hit, and neither Connelly nor any other Phantom crew in the area reported seeing the smoke trail of an Atoll or a MiG. They did report several SAM launches; Connelly may have seen the SAM hit Cunningham's F-4. While Dao's account is not implausible, it, like his wingman's claim of shooting down Blackburn and Rudloff, is not likely.<sup>252</sup>

With Cunningham and Driscoll's rescue, and Cannon and Morris' kill, the busiest day of the Vietnam War in the air came to an end. 414 sorties had been flown by both the USAF and the US Navy, opposed by at least 39 MiGs of varying types from Yen Bai to Haiphong. Having engaged every fighter regiment of the VPAF, the Americans came out ahead in the numbers game, having shot down no less than eleven MiGs (four MiG-21s and seven MiG-17s), for the loss of two USAF F-4s in air-to-air combat. Three of these belonged to Cunningham and Driscoll, the most scored by a single crew in a single mission during the war.

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<sup>251</sup> Drendel, p. 66; Ethell and Price, pp. 121-126.

<sup>252</sup> Ethell and Price, pp. 126-127; Toperczer, MiG-21 Units, p. 52.

Both men, after being suitably feted as the United States' first aces, were sent home: it was rumored that the North Vietnamese had put a price on their heads, and neither the Navy nor the US government was about to risk the lives of their two most successful aviators. Both Cunningham and Driscoll would go on to be awarded the Navy Cross for their actions (Cunningham was considered for the Medal of Honor), become Top Gun instructors; Cunningham commanded the program's adversary squadron before retiring and going into politics. At the time of this writing, he serves in the House of Representatives.<sup>253</sup>

On the North Vietnamese side of the ledger, the VPAF claimed six F-4s shot down—two F-4Js, a F-4D, a F-4E, and two unknown Phantom versions. Postwar records confirm only the loss of Lodge and Locher's F-4D, and Harris and Wilkinson's F-4E, with some question regarding Le Thanh Dao's claim of a F-4J (Cunningham and Driscoll) and Vu Duc Hop's similar claim of Blackburn and Rudloff's F-4J. In addition to the loss of eleven aircraft to air-to-air combat, the VPAF lost a further two to their own SAMs, making it the blackest day of the war for North Vietnam's pilots.

Finally, in conclusion of the events of this "long day in a long war," to borrow Ethell and Price's book title, is the mystery of Cunningham and Driscoll's fifth kill, the extremely skilled MiG-17 pilot.

Cunningham, who is certainly not overly modest when it comes to his skills, freely admits that "everything my airplane did, he reacted to instinctively." For many years, it was assumed that Cunningham and Driscoll had shot down the infamous "Colonel Tomb," then considered North Vietnam's top ace with thirteen kills scored since 1966. Lou Drendel, when interviewing Randy Cunningham not long after the war's conclusion, was told by Cunningham that it had been confirmed by classified sources that their final opponent was Tomb.<sup>254</sup> With the opening of VPAF documents and Toperczer's research in the late 1990s, it was revealed that no such man existed. As Toperczer states, had there been, the North Vietnamese would not have hesitated to use him as a propaganda tool. Other reasons pointing to Tomb being a legend is that no VPAF pilot with the rank of Colonel was allowed to fly combat, no pilot was credited with more than nine victories (even by VPAF records), and Tomb is not a Vietnamese name. Nguyen Van Coc, who is the

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<sup>253</sup> Holloway, p. 74.

<sup>254</sup> Drendel, p. 66.

VPAF's top ace and its most experienced pilot, denied knowing or hearing of such a man, as did Pham Tuan, who flew during Linebacker.<sup>255</sup>

However, Tomb was also known as "Toon." While Toon also is not a Vietnamese name, it has been surmised that Toon could have been Burmese, or more probably, Russian: Toon is an Estonian surname. Vladimir Shchbakov certainly flew combat using a MiG-17 during Rolling Thunder, and Russian instructors were still present in North Vietnam during Linebacker, as will be mentioned later in this narrative. Moreover, Toon was known by American signals intelligence to communicate with ground controllers only by clicking his radio button, a common practice for pilots who are too busy to respond verbally, but in this case, not to allow obviously Russian-accented Vietnamese to go out over a monitored channel. Since the MiG-17 was alone, heading back at high speed towards the fight at Hai Duong, it could have been a Russian instructor returning to his charges, who were in dire straits with the Navy F-4s. The problem with this theory is that VPAF records insist that only Vietnamese flew combat in 1972, and that Cunningham was reasonably sure that he was fighting a Vietnamese—"I could see a gomer leather helmet, gomer goggles, gomer scarf, and the intent gomer expression."<sup>256</sup> Whatever the pilot's identity and nationality, he was among the very best the VPAF fielded during the war, but, like Lodge and Locher, showed that a moment's wrong move or bad luck can kill even a highly experienced pilot.

With the intensity of the 10 May fights and Cunningham's climactic duel with what was thought at the time to be the leading Vietnamese ace, a Hollywood movie would end here. Yet Linebacker had only begun, and the air war was heading into its most intense phase since May 1967.

#### *Linebacker Intensifies: 11-31 May 1972*

Having lost 13 out of 39 aircraft committed to one day's fighting, the VPAF instructed its pilots to continue using the common deception formation—one flight flying high at low speed as bait, while the

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<sup>255</sup> Toperczer, *Air War*, p. 61.

<sup>256</sup> Holloway, pp. 68, 73.

“hunter” flight flew at low level and high speed. VPAF high command also ordered its pilots to stay in their designated airspace, where they could be monitored under ground control to avoid any more of the friendly fire incidents. The biggest problems that the VPAF were to find was that Linebacker was not a gradual campaign. Rather than having almost two years before the airfields were attacked, the USAF and Navy strikes were hitting the airfields from the beginning, and to make matters worse, VPAF pilots were taking off only to find the Phantoms waiting to attack the moment they left the ground. It was too fast for the ground controllers to react accordingly. The VPAF pilots, many of whom were green to begin with, would lose the coordination their training made them dependent on, at a time when they needed it the most.

On 11 May, the 927<sup>th</sup> Regiment’s MiG-21PFMs scrambled from Noi Bai to meet a USAF airstrike on an airfield at Bac Mai, immediately south of metropolitan Hanoi. Less than three minutes after takeoff and flying at less than a thousand feet, the attack flight—Ngo Van Phu and Ngo Duy Thu—spotted a single aircraft about three miles off. As they turned to intercept, they saw another four aircraft—the F-4 MiGCAP. Phu ordered Thu to attack the single aircraft while he took on the four Phantoms. It was either brave or foolhardy, but it worked—the single aircraft was a F-105G Wild Weasel, and Thu shot the crew down as they concentrated on attacking a particularly active SAM site. Both men—Majors William Talley and James Padgett—ejected and were captured the next day. Phu got some assistance from the decoy flight, and chose a pair of Phantoms who were intently chasing one of the other MiG-21s. Apparently the Phantom crews were not looking around them, for Phu dashed in and fired two Atolls, setting the starboard wing of one F-4D afire. The crew bailed out; the pilot was none other than Lieutenant Colonel Kittinger, who had gotten a MiG over Laos two months before and, with only a week before his tour was over, had been intent on getting one more. Instead, he and his WSO, Lieutenant William Reich, joined Talley and Padgett in the Hanoi Hilton. Both men could derive some amount of vengeance, however: as Phu flew past Kittinger’s burning Phantom, the remaining three in the flight came after him. As he felt his MiG get hit by a Sparrow, he ejected. So confusing was the battle—all three crews claimed credit—that it would not be until July 1974 that the USAF was able to judge all the evidence and award Captain Stephen Nichols and Lieutenant James Bell with the kill. Finally, it was determined that Phu had been shot down by a Sparrow, and Nichols had

been the only one to use an AIM-7 in the engagement.<sup>257</sup> The VPAF took another blow the next day, when four F-4Ds from the 432<sup>nd</sup> Wing pounced on four MiG-19s of the 925<sup>th</sup> as they took off from Yen Bai. Lieutenant Colonel Wayne Frye, the 555<sup>th</sup> Tactical Fighter Squadron's commander, and Lieutenant Colonel James Cooney, the Wing's operations tactics officer, shot down the last MiG-19 in a line; the others managed to escape a barrage of Sparrows.<sup>258</sup>

Almost a week passed before the next round of air combat, during which laser-guided bombs finally destroyed an old, persistent enemy of the American pilots—the Dragon's Jaw bridge at Thanh Hoa. On 18 May the USAF launched a strike on Kep airfield. This predictably drew a heavy response from the VPAF, with ten MiG-17s, MiG-19s, and MiG-21s from three regiments attacking the Americans. In the ensuing melee a single F-4D was shot down just north of Kep, killing Lieutenants Wesley Ratzel and Jonathan Bednarek. All three regiments claimed their Phantom, with Nguyen Hong Nhi, a Rolling Thunder veteran with the 927<sup>th</sup> the only pilot named in VPAF records. A flight leader with the 923<sup>rd</sup> Regiment reported shooting down a F-4D near Kep at 3000 feet, the 925<sup>th</sup>'s MiG-19s registered a claim of a F-4 of unknown type over Noi Bai, while Nhi also claimed he had shot down a F-4 near Kep, but gave no further details other than the Phantom being in a formation. The MiG-19 claim can probably be thrown out because of location, but given that neither pilot was able to eject seems to suggest catastrophic damage, the fact that they were not likely flying alone, and that Ratzel and Bednarek were shot down at 6000 feet makes it likely that Nhi's claim is the accurate one. Though VPAF records list this as his eighth kill, postwar records analysis make it only his second—the first was scored in 1967, making him one of the few VPAF pilots to have victories during both Rolling Thunder and Linebacker.<sup>259</sup>

Later that day, the US Navy struck targets in the Haiphong area, and duly placed a TARCAP five miles south of Kep: two F-4Bs of VF-161, crewed by Lieutenants Henry Bartholomay and Oran Brown, and Lieutenants Patrick Arwood and James "Taco" Bell (no relation to the James Bell who flew with the USAF). Once more, the crews involved were either Top Gun graduates or had benefited from lessons

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<sup>257</sup> Hanak, p. 94; Hobson, pp. 226-227; Toperczer, *MiG-21 Units*, pp. 53-54.

<sup>258</sup> Hanak, p. 94. Frye and Cooney were the oldest pilots to score a kill during the war: Frye was 41; Cooney, 44.

passed on by the squadron's graduates. Red Crown radioed a contact report, and soon afterwards Bartholomay caught flashes of sunlight from below. As the Phantoms turned to investigate, their crews recognized the shape of two MiG-19s, inbound from China and possibly replacements for 925th's heavy losses. As Bartholomay and Arwood came in at near supersonic speeds over the end of Kep's runway, the MiG-19s saw them and tried to accelerate away. Arwood was in a better position to fire, but the tight turn radius of the MiGs kept him from getting a good sight picture. He finally launched a Sidewinder and hoped for the best, and though the Sidewinder missed, the MiGs broke their formation into a defensive break—one aircraft going high, the other into a such a hard break that Bartholomay wondered if the wings were going to come off. The two Navy crews also separated to pursue their targets, Arwood staying on the MiG-19 that had climbed. The VPAF pilot rolled and turned in an effort to find Arwood visually, then turned in the direction of Bartholomay, who had briefly been drawn into a low-speed turning duel with the other MiG. Bartholomay had extended out to get room, Brown watching the MiG-19 carefully. When the MiG had slid nearly behind the Phantom, Bartholomay executed a barrel roll and ended up behind his target again, this time at a speed better suited to his F-4. Once Arwood had shot down his target, which had ended up two miles behind Bartholomay, the latter also dispatched the MiG in front of him. Both VPAF pilots were able to eject from their out-of-control MiG-19s, though VPAF accounts record both pilots as being killed. Low on fuel, the Navy Phantoms headed for their carrier, *Midway*. While both crews had managed the fight competently and had never relinquished the initiative, they were later criticized for splitting the formation and leaving themselves vulnerable had other MiGs gotten into the air. In a stroke of luck, Kep's normally formidable defenses were completely silent, and by the time the airfield scrambled more MiGs, the F-4s were already halfway home. The criticism was muted, however, because the crews had been successful. Amazingly enough, it had been Arwood and Bell's first mission over North Vietnam.<sup>260</sup>

Very little had been heard from the veteran 921<sup>st</sup> Fighter Regiment at Noi Bai, but the unit scored its first confirmed kill since late April on 20 May. The two MiG-21s scrambled attacked the MiGCAP covering a

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<sup>259</sup> Hobson, p. 226; Toperczer, MiG-17 and MiG-19 Units, p. 55, 63; MiG-21 Units, p. 55.

<sup>260</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1970-72, pp. 65-68.

strike near Hanoi, and one of the pair, Do Van Lanh, dodged missiles and fired two of his own, shooting down a veteran of the 10 May battles—Lieutenant Markle and his WSO, Captain James Williams. Markle was lucky enough to be rescued by an intrepid HH-53B Jolly Green crew, but Williams was captured.

Do Van Lanh was back in action two days later for the month's second large air battle, as the USAF once more struck Kep airfield and the Navy went after fuel storage facilities northeast of Haiphong. A flight from the 366<sup>th</sup> TFW at Da Nang were assigned the dual role of establishing a chaff "corridor" for the strike force; once they were done dropping chaff, the unit was to act as MiGCAP. As the flight passed Kep, they spotted four MiG-21s preparing to take off, with a mixed group of MiG-17s and MiG-19s acting as top cover. Lieutenant Colonel Lyle Beckers and Captain John Huwe, flying one of the F-4Es, dived on the MiG-19s through the clouds, while their wingman crew, Captain James Beatty and Lieutenant James Sumner, covered them from above. Beckers lost sight of the MiG-19s for a moment and had to pull off for a moment, get a better angle, and attack again. 45 seconds after spotting the MiGs, Beatty fired two Sparrows, one of which knocked down the MiG-19 flown by the hapless Nguyen Duc Tiem, who had barely survived a crash landing on 10 May. He ejected this time, having never seen Beckers and apparently believing he had been shot down by a friendly SAM. Beckers next spotted five more MiG-19s in a defensive circle near Kep, and made several passes at them, trying to find an opening. As he did so, Beatty spotted two MiG-21s circling around to attack his wingman, so Beatty rolled in, got close, and opened fire with his F-4E's nose-mounted cannon. His shells tore into the MiG's left wingroot, and the pilot ejected. The Americans headed for home, having scored the first victories for the new E model, and Beatty had vindicated the addition of an internal gun. The VPAF admitted the loss of both aircraft (though Tiem's was listed as having been lost to the SAM), while the MiG-21s claimed a F-4D. The only F-4D lost on this date, however, was shot down by a SAM near the DMZ far to the south.<sup>261</sup>

The Navy ran into heavy opposition around Haiphong, nearly as heavy as that on 10 May. Flying fighter duties once more were two VF-161 F-4Bs, this time consisting of Lieutenant Commander Ronald McKeown and Lieutenant John Ensich, with Lieutenant Michael Rabb and Lieutenant (jg) Kenneth Crandall

on their wing. McKeown, another Top Gun graduate, had boasted before the *Coral Sea* left the United States that if the North Vietnamese wanted to shoot him down, they had “better bring a hundred.” He very nearly told the truth.

McKeown and Rabb had been ordered to set up a TARCAP station near Kep, where their squadronmates had gotten the MiG-19s five days earlier. Red Crown radar detected “bogies” taking off from Kep, but neither Phantom RIO could pick them out on radar—the MiGs were too low, and Crandall’s radar had failed. Red Crown kept them apprised of the MiGs’ location until finally McKeown spotted them. Before Ensich had a chance to lock on, the bogies, two MiG-19s, shot between the two F-4s and disappeared astern. The F-4s executed a crossing turn—each aircraft flying towards the other in a wide turn, reversing direction and position—when, as McKeown put it, “it was raining MiG-17s on us. There were MiG-17s everywhere, and I think all of us thought that we were up to our ass in alligators.” Four attacked Rabb, and he dived to fifty feet in an effort to evade.

McKeown was diving to help his wingman when he looked up into the underside of a MiG-17 coming directly at his canopy. Somehow, the two aircraft missed each other, and McKeown instinctively turned hard to get on the MiG’s tail, simultaneously hitting the MiG-17’s jetwash. Fans of the movie *Top Gun* can predict what happened next: the F-4 wallowed, stalled, and executed two end-over-end rolls. In a Phantom, such a departure from normal flight is usually fatal, but somehow McKeown got control, rolled to gain energy, and came out directly behind another MiG-17, possibly the same one they had almost hit. McKeown fired a Sidewinder, but the MiG pilot snapped into a hard break and the missile flew past harmlessly. (McKeown later joked, “He probably went back to the bar at Kep that night and told his comrades he had fought King Kong!”)

With Rabb still in trouble, McKeown continued his interrupted dive and fired another Sidewinder at the MiG-17 shooting at his wingman. The MiG climbed to evade the missile, which only insured that McKeown’s next shot hit. As that MiG-17 rolled over and went down, another began its attack. McKeown broke into the MiG, but the VPAF pilot turned inside the F-4—but McKeown realized that, from the position

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<sup>261</sup> Hanak, pp. 94-95; Hobson, p. 227; Toperczer, *MiG-17 and MiG-19 Units*, p. 63; *MiG-21 Units*, p. 55.



of the MiG-17, the pilot could not see him. He pushed the stick down to bleed off airspeed and rolled in behind the MiG. One Sidewinder later, and another MiG-17 was going down aflame. Having pushed their luck far enough, McKeown and Rabb disengaged and returned home. McKeown returned to the United States two months later to take command of Top Gun.<sup>262</sup>

The VPAF had lost four aircraft on the day, with Nguyen Duc Soat of the 927<sup>th</sup> only partially redressing the balance by shooting down a single A-7B near Nam Dinh. The pilot of the A-7, Commander Charles Barnett, reported being hit by a SAM and nothing further, being killed in the crash. While the US Navy still officially claims that Barnett was shot down by a SAM, Soat was in the area. As no other A-7s were lost on 23 May, it is quite plausible that Barnett was indeed shot down by Soat. The next day, 24 May, was almost a comedy of errors as the 921<sup>st</sup> Regiment scrambled four MiG-21s to attack USAF aircraft near Thai Nguyen and Vu Ban. The four pilots were new ones, and fired off a total of eight missiles without a single hit; Do Van Lanh almost had to bail out when he failed to watch his fuel gauge during the inconclusive engagement, but managed to glide nearly 30 miles back to Noi Bai. A F-8J of VF-24, the last Crusader squadron in Southeast Asia, was vectored to attack a “bogey” by Red Crown, but the contact turned out to be another F-8. To make matters worse, the vectored F-8 was then shot down by a SAM, though luckily the pilot, Lieutenant Carrol Beeler, was able to eject and become a “guest” of the Hanoi Hilton.<sup>263</sup>

The very busy month of May closed with another air battle on the 31<sup>st</sup>, once more near Kep and once more by USAF pilots who were establishing a “hot run” similar to Lodge, Locher, Cunningham, and Driscoll. The first scorer of the day were Captains Bruce Leonard, Jr., and Jeffrey Feinstein of the 432<sup>nd</sup> Wing, which was flying two MiGCAP flights, one with F-4Ds and the other with F-4Es. The first flight quickly found itself engaged with two MiG-21s head on. Feinstein attempted to lock on, but the Americans’ problem with radars continued—his malfunctioned. The lead MiG-21, probably a green pilot, fired two Atolls at the F-4s, but they were wasted shots—the Atoll was strictly a rear-aspect only missile. The Sparrow

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<sup>262</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, pp. 68-71; Drendel, pp. 69-70. Enschede would be shot down a few weeks after his friend took command at Top Gun, but once he was released from prison in 1973, he joined McKeown at Top Gun as the unit’s executive officer.

<sup>263</sup> Hobson, p. 227; Toperczer, MiG-21 Units, p. 55.

was not, but the flight had no better luck than the Vietnamese, expending four AIM-7s with no hits. Leonard tried a Sidewinder; again, it missed. Finally, another MiG-21 made a head-on pass then dived away to the left. It was a fatal mistake: Leonard rolled in behind and fired another Sidewinder, and this time it ran true. The flight had to disengage as SAM radars were detected, and antiaircraft fire began to burst uncomfortably close.

The second flight of F-4Es, led by Steve Ritchie with Captain Lawrence Pettit as his WSO this time, engaged another group of MiG-21s near Thai Nguyen. Guided by Red Crown vectors, Ritchie positioned his flight in a gradual left, descending turn, and ended up behind a section of two MiG-21s. As Pettit locked on the trailing MiG, the section went into a defensive break, but it was too late: Ritchie fired all four AIM-7s. The Sparrow continued its error-plagued ways: one corkscrewed crazily away and two more exploded. The fourth ran true and struck the MiG-21 just behind the cockpit. The explosion literally blew the MiG in half. For Feinstein and Ritchie both, it was victory number two, and the 432<sup>nd</sup> had another “ace race” on its hands.<sup>264</sup>

May 1972 was second only to May 1967 in American successes: 27 MiGs had been shot down, 16 by the Navy and 15 by the USAF. The change in American tactics of putting aircraft nearly on top of VPAF airfields was working, and the Top Gun training for Navy pilots had been vindicated beyond the program’s wildest dreams. For the VPAF, the month had been a disaster, and even claims for 19 Americans shot down (six confirmed by postwar records) would not redress the balance. Though the VPAF was larger and so was able to absorb the losses easier than it did in 1967, the combination of the new American tactics, the lack of newer VPAF tactics to counteract them, and the preponderance of new and inexperienced pilots meant that the VPAF could not afford to do so much longer. In late May, the VPAF called a conference of fighter regiment commanders and senior officers to look into what could be done—a meeting, ironically, not unlike the “River Rat” tactics conferences that had sprung up among American units in Thailand during 1966. The recommendations that came out of the meeting were to improve air-ground communications between VPAF and air defense units, to avoid the loss of any more aircraft to friendly fire; communications were also

improved between radar units and the fighter bases to give better raid warning, so that the VPAF's pilots would not be taking off into the waiting Phantoms. As the Americans were also going after the bases themselves, defenses were strengthened around them, and MiGs on alert were reduced from 32 to 34 (nearly an entire regiment) to a more workable 12 to 16. This had a threefold effect: it reduced the number of pilots who would be under the stress of constantly standing alert (added to the fact that a MiG cockpit in humid North Vietnam was not comfortable in the least); it allowed the VPAF to revert to storing some of their aircraft in caves and villages, out of harm's way; finally, it allowed the VPAF to store some the older, more tired MiG-21PFMs and distribute the newer MF models between the two MiG-21 regiments. It also reduced the need for jet fuel: though China had increased fuel shipments over the northeast railroad, the main source had always been through Haiphong, which was now effectively closed. Spare parts would also increasingly become a problem, though the VPAF had adequate stocks on hand, and could get a limited supply from China. In fact, the Chinese technicians and advisors grew in respect, while the Russians still in North Vietnam were severely restricted in their movement. Though they too continued to work on the VPAF's MiGs and provide flight instruction on the increasingly rare quiet days, it was obvious that Hanoi did not appreciate Moscow's lackluster response to Operation Linebacker.

Other changes included the status of the 925<sup>th</sup> Regiment, whose MiG-19s had taken the worst of the May fights. It was moved from its vulnerable position at Yen Bai to a more centrally located and defensible site at Gia Lam International Airport. The MiG-17s of the 923<sup>rd</sup> Regiment were also to be kept out of combat as much as possible; the salad days of the venerable old fighter were clearly over, and the VPAF wanted to avoid another massacre as had happened on 10 May. The MiG-17 would become a rare sight over North Vietnam, and after July 1972, encounters were virtually nonexistent. Following the loss of the only facility able to repair MiG-17s, most were moved to China. With the MiG-19 proving a disappointment--after 18 May, the type would not score another aerial victory in the war--the MiG-21 would shoulder the lion's share of the air defense work.

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<sup>264</sup> Hanak, pp. 95-96.

New tactics were worked out and distributed in pamphlets to the VPAF's pilots. The Party also got involved directly, by emphasizing "self-confessions" and analysis of all air-to-air encounters to determine what went right and wrong. Pilots were advised, once again, to not get overconfident, and propaganda that whipped up hatred against the Americans was reduced, at least among the pilots, as it was felt that this led to reckless attacks and unnecessary losses. Pilots that got shot down and survived were also not returned to combat immediately, but allowed to rest and reflect on what had happened, which, it was hoped, would encourage them not to make the same mistake twice. The program would be instituted throughout the summer, and would have a noticeable effect.

The VPAF entered the summer of 1972 with a determination to hold their ground; the Americans entered the same period with a desire to destroy them.<sup>265</sup>

#### *The Seesaw Battles and the Udorn Ace Race: June-July 1972*

By early June, the North Vietnamese offensive was starting to run into trouble. An Loc was holding fast, thanks to well-executed airdrops of supplies and massive American air support, including B-52 strikes. Kontum had held as well, thanks to a brilliant defense by the ARVN commander there, and the ARVN was counterattacking. The defense line north of Hue was holding, again with the help of American airpower and offshore naval fire support. The ARVN was proving much better on the defensive than the offensive, namely because Thieu had finally sacked the politically reliable generals and replaced them with competent men.<sup>266</sup> The Linebacker sorties, especially through their use of precision guided weapons, were also beginning to have a noticeable effect, which surprised even analysts in Washington. Kissinger had estimated that North Vietnam had ample supplies on hand, and given the small impact Rolling Thunder had on VC/NVA operations at that time, it was supposed that the effects might not be felt until around July. Yet in choosing a conventional approach to warfare, a combined-arms blitzkrieg assault on South Vietnam,

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<sup>265</sup> Toperczer, *Air War*, pp. 48-49; *MiG-17 and MiG-19 Units*, pp. 56-57, 63; *MiG-21 Units*, pp. 54-55.

<sup>266</sup> Benjamin Donnelly, "The Easter Offensive." Mansfield Center Digital Teaching Library

Giap had actually given the NVA a major handicap it had lacked in 1968. Before, the average NVA soldier usually only needed food and ammunition for his AK-47 or RPG. By using crew-served artillery and tanks, the NVA was now more dependent on fuel, lubricants, and spare parts, which were in increasingly short supply with the closure of Haiphong and the loss of the major bridges in Hanoi and Thanh Hoa. Moreover, Nixon had authorized the use of B-52 strikes in Pak One, targeting supply depots and routes, beginning on 8 June. With the initiative progressively slipping from the North Vietnamese grasp, Kissinger felt it appropriate to restart negotiations, and Hanoi agreed to set the date for 19 July. If the North Vietnamese had hoped this would cause a bombing halt, it was a vain hope: Nixon had no real intention to let up the pressure before the Presidential election in November, as he wanted to keep conservative Republican support, and Nixon sensed that the tide of war had turned in his direction. The bombing would not stop; in fact, it would grow more intense.<sup>267</sup>

June opened with a material victory for the VPAF and a moral victory for the USAF. Contact had been made with Roger Locher on 1 June, and immediately rescue forces were scrambled to pick him up, and strike units diverted to provide support. The 921<sup>st</sup> had scrambled two MiG-21s and attacked a force of twelve F-4Es which were covering the rescue forces. Pham Phu Thai fired two Atolls and was sure he had hit a Phantom; to avoid the barrage of missiles from the others, he made a hard break away from the formation, a punishing nine-G turn. The MiG-21 was safely rated for only seven-Gs, but despite badly overstressing the airframe, Thai returned to base. The USAF records losing a F-4E of the 432<sup>nd</sup> Wing on this date, flown by Captains G.W. Hawks and David Dingee, but lists it as being hit by a SAM. Hawks managed to get back to Thailand before the Phantom became uncontrollable, and he and his WSO successfully bailed out. Since the area in which Hawks was hit and Thai's reported position when he attacked are close together, Thai correctly identified his target as a F-4E, and the A-1 Sandies flying in to find Locher reported a MiG-21 in the area, it is certainly plausible that Thai's account was correct, especially if no one in the Phantom flight saw the MiG. A single MiG-21 did make a pass at the defenseless

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(<http://awiadtl.ito.umt.edu>).

<sup>267</sup> Clodfelter, pp. 159-160.

Jolly Green helicopters, but never fired and aborted the attack; this may have been Thai and his crippled MiG, or Thai's unnamed wingman who decided that being alone in a sky full of Phantoms was distinctly unhealthy.<sup>268</sup> Because of the MiG activity, the rescue effort for Locher was cancelled for 1 June, but he was successfully rescued the next day, when General Vogt "put the war on hold" and devoted 119 aircraft to getting Locher out. His rescue was a morale boost to the entire USAF, and certainly the pilots thought the effort more than worth it.

2 June also saw the USAF get another MiG kill. A planned strike against the Northeast Railroad near Kep went forward despite the Locher mission, mainly because it would divert attention from the rescue effort. Four MiG-19s took off from Gia Lam to intercept and attacked the F-4E MiGCAP as it was leaving the target area. The flight leader, Major Philip Handley, and his WSO, Lieutenant John Smallwood, were able to get behind a MiG-19 and fired 300 rounds from the undernose M61 cannon. The MiG-19 slowly rolled over and then dived directly into the ground. The pilot did not survive. VPAF records list this MiG as being lost to friendly SAM fire, which was an understandable mistake; shortly before the MiGs attacked, a SAM had very nearly claimed one of the Phantoms and had caused the section to separate. However, Handley's kill was observed by the other Phantoms, and gun camera footage was used to verify the kill.<sup>269</sup>

The Navy struck again on 11 June. Two F-4Bs from the "Screaming Eagles" VF-51 off *Coral Sea* were assigned MiGCAP duties for a strike on the Nam Dinh powerplant and barracks; flying the mission was Commander Foster Teague, one of the original Top Gun instructors, and his RIO, Lieutenant Ralph Howell. Flying on "Tooter" Teague's wing were Lieutenants Winston Copeland, one of Teague's students, and his RIO, Donald Bouchoux. Copeland had a reputation for rowdiness that had gotten him restricted to his stateroom aboard the carrier three times in the last year and a half, and was nicknamed "Mad Dog." Flying a replacement F-4 from the Philippines to Tonkin Gulf by himself, a breach of Navy and flight regulations, had been his latest transgression, and Teague had only released him from "hack" that morning.

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<sup>268</sup> Hobson, p. 227; Sherwood, p. 240; Toperczer, MiG-21 Units, pp. 55-56.

<sup>269</sup> Hanak, p. 96; Toperczer, MiG-17 and MiG-19 Units, pp. 63-64.

About five minutes after arriving at their CAP station, Red Crown detected a group of “bandits” heading south from Hanoi: four MiG-17s of the 923<sup>rd</sup> Regiment. When Howell sighted them, Teague and Copeland began a gentle left turn that would terminate behind the loose formation of MiGs. They were spotted, and the MiG flight lost all cohesion—an indication that these MiGs were likely flown by new pilots, possibly even trainees. Two MiG-17s broke hard left, one continued to go straight, and the fourth went into a slow right turn. Teague selected the latter and bore in, with Copeland covering him from high and behind. Teague saw the second MiG-17 reverse its left break and come over the top of their F-4, and warned Howell to watch their tail. At that moment, the MiG exploded: Copeland had seen his opportunity and fired a single Sidewinder. Teague had little trouble staying on his target, which executed no evasive maneuvers, and shot down the MiG with two Sidewinders. He then went after another, but this pilot was a little more experienced and managed to evade another Sidewinder shot. With the Phantoms having trouble communicating and MiG-21s detected in the area, Red Crown advised the two F-4s to head for their carrier. On the way out, Copeland’s aircraft was hit by small arms bullets that caused a fire in the left engine. Copeland was able to extinguish it by climbing, and successfully talked the *Coral Sea*’s landing officer that he could land on one engine. He did, and “Mad Dog” Copeland went on to become not only an instructor at Top Gun, but the commander of a carrier battlegroup involved in the Kosovo Conflict of 1999.<sup>270</sup> It was the last single-mission double kill scored by the Navy in the war.

On 13 June, the initiative seesawed back to the VPAF. A section of MiG-19s were scrambled from Gia Lam to intercept a USAF strike near Thai Nguyen. The MiG-19s ran into a MiGCAP of F-4Es of the 432<sup>nd</sup>, and were forced to withdraw. As the Phantoms gave chase, four MiG-21s came up from behind; they had been spotted by other American aircraft, but the warning was lost in the confusion. Two experienced pilots, Pham Phu Thai and Do Van Lanh, were able to launch their missiles, and both claimed Phantoms. However, postwar records only record the loss of a single F-4 on 13 June, the F-4E of Lieutenants Gregg Hanson and Richard Fulton, who bailed out over Tuyen Quang to become POWs.<sup>271</sup> Steve Ritchie claimed

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<sup>270</sup> Elward and Davies, US Navy Phantom II MiG Killers, pp. 72-75.

<sup>271</sup> Hobson, p. 228; Toperczer, MiG-21 Units, p. 56.

shooting down a MiG-21 on this date as well, but his claim was denied by Seventh Air Force, and VPAF records list no losses on this date. Jeff Feinstein had a similar experience in a 9 June dogfight; again, no official recognition and no VPAF records bear out the claim.<sup>272</sup>

There was one bombing halt during Linebacker, between 14 and 18 June, when Russian officials were visiting Hanoi and most likely passing on Kissinger's offer of renewed negotiations. The raids resumed on 19 June, but it was not until 21 June that another air battle developed northwest of Hanoi, near Phu Tho. Two MiG-21s of the 921<sup>st</sup> took off from Noi Bai to attack what was believed to be a strike force. In actuality, it was three flights of F-4Es, two of which were dropping chaff and the third a MiGCAP unit. The VPAF section split, one going after the chaff aircraft while the other took on the MiGCAP. Do Van Lanh, flying once more (his indefatigable spirit was to earn him the nickname "Ironbird" that had been Nguyen Van Coc's), shot down a F-4E that was preparing to drop its load of aluminum foil; this kill was verified by USAF records, and Captain George Rose and Lieutenant Peter Callaghan were to join the increasing "new guy" crowd at the Hanoi Hilton.

The other MiG-21 pilot dived on the lead MiGCAP F-4E, flown by one of the 388<sup>th</sup> TFW's senior officers, Colonel Mele Vojvodich. One of the crew in the third aircraft of the flight, either Lieutenant Colonel Von Christiansen and Major Kaye Harden, spotted the MiG and radioed a warning to Vojvodich. It came none too soon, for as Vojvodich slammed his throttles forward and went into a hard break, two Atolls sailed past his tail. Christiansen now dived and engaged the MiG-21, whose pilot engaged the afterburner and made for Noi Bai. With the failure of two Sparrows, Christiansen selected Sidewinders and hit; as the MiG-21 turned into a torch from the cockpit back, the pilot ejected. Christiansen then climbed and engaged Lanh, but the latter was able to dodge the American's gunfire, assisted by a problem with the gunsight itself. Christiansen may have damaged Lanh's aircraft, but the latter made it back to base.<sup>273</sup> It was the first kill the 388<sup>th</sup> had made since 1967.

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<sup>272</sup> Hanak, 102.

<sup>273</sup> Hanak, pp. 97-98; Hobson, p. 229; Toperczer, MiG-21 Units, p. 56; Air War, p. 46.



As was often the case in 1972, the VPAF had less luck against the US Navy later in the day, as aircraft from the *Kitty Hawk* struck targets around Hai Duong, the site of the epic battles of 10 May. In this case, the MiGCAP consisted of two F-4Js from VF-31, the crews consisting of VF-31's executive officer, Samuel Flynn, his RIO Lieutenant (jg) William John, and their wingman crew, Lieutenant (jg) Nicholas Strelcheck and Lieutenant David Arnold. Besides being an experienced Phantom pilot, Commander Flynn had also flown in a MiG-21MF simulator built by NASA. They were vectored towards two MiG-21s approaching the target area, and soon sighted them at four miles away. Sure enough, they were both MiG-21MFs, probably flown by the less-experienced 927<sup>th</sup> Regiment. The MiG formation split into a classic defensive break, one going high and the other low. Flynn engaged the high MiG, whose pilot executed a "hammerhead" maneuver, letting the MiG fall over on one wing at the apex of the climb, and tried to engage his pursuer head on. Flynn was already one step ahead, rolling high and then pushing the nose down to dive on top of the MiG. The MiG-21 evaded into the clouds, but as Flynn prepared to pursue, his wingman called for help—the second MiG-21 was coming after him. Strelcheck dodged an Atoll hastily fired at him, and as he accelerated away from his attacker, the MiG-21 climbed to disengage. It was a near-fatal mistake: it allowed Flynn to get behind him. The American fired a Sidewinder, which was a dud and passed the MiG harmlessly. The second Flynn launched directly into the MiG's tailpipe. The explosion sent the MiG into a flat spin, and the pilot ejected. Flynn's victory gave the Navy an incredible 21-1 kill ratio for the first half of 1972.<sup>274</sup> If the Navy was reaping the rewards of Top Gun training, the USAF was suffering for its lack of a companion program. Christiansen and Harden's kill would be the last for over two weeks, and for that time, the balance suddenly shifted back to the VPAF.

On 24 June, the USAF had targeted another old adversary, the Thai Nguyen steelworks. Vietnamese ground radar was able to successfully track the strike force this time, despite the use of standoff ECM support and chaff, and MiG-21s of the 927<sup>th</sup> were quickly scrambled in two-plane sections. The first section just managed to escape an attack made by F-4Es almost as soon as they retracted their landing gear. The second section also managed to get in the air, and these two pilots were ordered to distract the

MiGCAP while the third section scrambled. This section, consisting of Ngo Duy Thu and Nguyen Duc Soat, went after the MiGCAP as well. Once at altitude, the Vietnamese had the advantage of a thick overcast to hide in, and then were greatly assisted by chaos developing in the strike force's formation. Apparently due to mistiming or possibly the MiG threat, the chaff dispensing Phantoms did not egress to one side of the force, but apparently maneuvered directly through it. Either by accident or design, Thu and Soat picked this time to attack the distracted MiGCAP. Soat fired a single Atoll, downing the F-4E of Captains David Grant and William Beekman, who ejected and were captured; it was Soat's second kill. He then went after the flight leader, but could not get a lock. When the Phantoms began to descend to thicker air, where their performance was better, Soat decided not to fight on his opponents' chosen ground, and returned to Noi Bai. Thu had gotten off a shot as well, but like the Sidewinder, the engagement "cone" of the K-13 was limited, and his missile missed. Thu rejoined on Soat and also returned home.

The fourth section of MiG-21s, flown by Nguyen Van Nghia and Nguyen Van Toan, fought their way past the MiGCAP F-4s at Noi Bai and climbed into the overcast. A few minutes later, cued by their GCI, Nghia and Toan tumbled out of the overcast on top of the egressing strike force. Both fired missiles, but only Nghia connected, knocking down the F-4D of Lieutenants James McCarty and Charles Jackson. The F-4 went down at high speed, and Jackson was severely injured in the ejection; McCarty apparently never got out of the aircraft and was killed. It had been a good day for the VPAF, having shot down two F-4s and lost none of their own, despite the stiff opposition over their own base.<sup>275</sup>

As June had begun on a high note for the VPAF, it ended quite well for them. The targets on 27 June included the Bac Mai airfield near Hanoi and a vehicle repair facility in the city itself. The VPAF launched a staggered scramble from Noi Bai, sending two-aircraft sections aloft as the raids developed. These sections consisted of Nguyen Duc Thu, Ha Vinh Thanh, Nguyen Duc Soat, Ngo Duy Thu, Pham Phu Thai, and Bui Thanh Liem. The second section, Soat and Thu, were vectored towards Hoa Binh near the Laotian border, where they detected about ten American aircraft coming across the "fence." The two MiG-21 pilots

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<sup>274</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, pp. 75-77.

<sup>275</sup> Hobson, pp. 229-230; Toperczer, MiG-21 Units, pp. 56-57.

climbed to around 13,000 feet, positioning for an attack behind the incoming flights. Once they received permission to attack, Soat and Thu dived on a section of two F-4Es, part of the 432<sup>nd</sup> Wing's MiGCAP for the Bac Mai raid. Distracted by SAM warnings, neither crew spotted the MiGs until Soat fired his Atolls. Both hit, and Captains John Cerak and David Dingee had to bail out of their mortally wounded fighter. If Thai's claim on 1 June is valid, Dingee had the dubious honor of being shot down twice by MiGs. He was not quite as lucky as he had been earlier in the month: he and his pilot were captured. Missiles expended, the MiG section headed for home.

With Cerak and Dingee down, the SAR forces were scrambled and Valent Flight, which had been dropping chaff for the strikers, was reassigned to RESCAP duties. Valent was sent chasing MiGs, but could not catch up to them (most likely Soat and Thu; the latter ran out of fuel and had to make an emergency landing at a small airstrip). It refueled over Laos, then made another pass over the area where the two Americans had been shot down. Because Valent had already dropped its external tanks in chasing the MiGs earlier, it was low on fuel even after refueling, and as fuel reached a critical stage, Valent headed back into Laos. In the USAF's standard "finger four" formation, the fourth aircraft spent a lot of time just maneuvering to stay in position, so Valent Four, piloted by Captains Lynn Aikman and Thomas Hanton, dived away from the rest of the flight, trading altitude for time. At that point, the Disco EC-121 called out that there were MiGs fifteen miles behind the flight. The radar controller apparently misread his scope, however, for as Aikman dipped a wing and turned slightly for Hanton to look behind them, a K-13 slammed into their F-4E. Pham Phu Thai and Bui Thanh Liem had been moving in and out of the clouds, and had seen Valent Flight break up. As Thai shot down Aikman and Hanton, Liem moved in and shot down Valent Three, Major R.C. Miller and Lieutenant Richard McDow. Luckily for Aikman and Miller, the rescue forces were already en route to find Cerak and Dingee, and were able to pick up the pilots from both F-4s despite heavy resistance from North Vietnamese ground forces. Hanton and McDow joined Cerak and Dingee on the trip to the Hanoi Hilton. Ngo Duy Thu and Nguyen Duc Nhu also claimed F-4s on the day, but the only other Phantom lost on 27 June was to a SAM over Gia Lam airport, well away from the stated

positions of Thu and Nhu, between Hanoi and Laos. Even so, having shot down three Phantoms for no losses, it was the VPAF's best day since 30 April 1967, and one of the best of the war.<sup>276</sup>

Bad weather set in on 31 June, and while Linebacker sorties over the North continued, they were cut back because of the poor conditions. Because the new precision guided munitions were proving such a success, these took up the bulk of Linebacker missions, limited only by the number of Pave Knife and Pave Spike laser designators on hand.

While the PGMs had the advantage of allowing the fighter-bombers to stand off and drop out of the range of antiaircraft fire, it required them to stay on a steady course longer than a conventional bomb run, as the bombs had to be lined up on the laser, "painted" on the target by an aircraft carrying one of the Pave pods. This was a difficult task in an area with active SAMs, though chaff, standoff ECM support, and Wild Weasels made the job easier. Against MiGs, however, flying straight and level for any period of time was extremely dangerous. The MiGCAP would partially offset this disadvantage, but the orbiting fighter F-4s were themselves vulnerable for the same length of time. The VPAF had nearly scored a victory on 3 July, but on 5 July, all the advantages were once again theirs: the MiGCAP was covering a PGM bomb run, and to make matters worse, it was over a low, thick undercast. Nguyen Tien Sam and Ha Vin Thanh took advantage of the clouds after they were scrambled from Noi Bai; popping up from the clouds, they both fired two Atolls each. One of Sam's missiles prematured, but the other found the F-4E of Major William Elander and Lieutenant Donald Logan. Both of Thanh's worked, and a second F-4E, flown by Captain William Spencer and Lieutenant Brian Seek, went down. All four Americans ejected successfully and were captured. Both MiGs escaped back into the undercast, but not before Sam had a close call—his engine ingested part of the Atoll that had exploded in front of him, causing it to flame out. He managed to get it restarted and returned to Noi Bai.<sup>277</sup>

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<sup>276</sup> Hobson, p. 230; Toperczer, *MiG-21 Units*, pp. 57-61. While David Dingee had no luck in air-to-air combat, his son fared better, shooting down an Iraqi Mi-8 helicopter during Operation Desert Storm.

<sup>277</sup> Hobson, pp. 231; Toperczer, *MiG-21 Units*, p. 61. Don Logan, following his release from prison in 1973, went on to become an acclaimed aviation historian.

During the various aborts and stand-downs due to weather, many pilots and WSOs used the time wisely, resting for when the weather did clear and working on improving tactics—to the extent that they were allowed to by higher command. None were busier than Steve Ritchie, who with two kills, the death of Robert Lodge, and the departure of Roger Locher, was now in the top tier of the USAF's "ace race." Only one other pilot, Frederick Olmsted, and a WSO, Jeff Feinstein, had as many. Ritchie, during the off days, would spend time with the ground crews, developing a relationship that allowed him to ask for, and get, complete technical checks on his missiles every ten missions. He also got in contact with the Disco EC-121 and Red Crown controllers by phone or face to face, if possible, making sure that the day's callsigns were straightened out and that the controllers knew who was who. By laying this groundwork, Ritchie ensured that things would work smoothly the next time he got a chance at scoring another victory.

That chance came on 8 July, when the weather cleared enough for a strike in the Hanoi area. The MiGCAP for the chaff dispensers, four F-4Es from the 366<sup>th</sup> TFW, was covering the egress of the chaff bombers when Red Crown radioed a warning of "blue bandits"—MiG-21s—in the area. As the flight turned to engage, a MiG-21 flown by Dang Ngoc Ngu hit the Phantom of Lieutenant Colonel R.E. Ross and Captain Stanley Imaye with an Atoll, putting out the left engine. Ngu's wingman (not named in VPAF records) was not as lucky. He overshot the second element of the flight, putting his MiG-21 directly in front of a F-4E flown by Captains Richard Hardy and Paul Lewinski. After attempting to fire three Sidewinders, none of which even left the aircraft, they fired off two Sparrows as the MiG extended the range. These worked perfectly, the first blowing the right wing off and the second hitting the tumbling fuselage. No parachute was seen. Apparently, the pilot had been making for Noi Bai, but was told to divert to Kep and then Gia Lam. The pilot was possibly trying to verify where he was supposed to land at, and so never saw Hardy coming after him.<sup>278</sup>

At this point, Ross, heading towards Laos with a crippled Phantom, did something either very brave or very foolhardy: he transmitted his location, heading, altitude, and battle damage on Guard channel, the emergency frequency that everyone in Southeast Asia, including the VPAF and the USAF alike, listened to.

Ritchie, flying with Charles deBellevue again, was leading a MiGCAP flight nearby and turned to help escort the wounded Phantom. Two MiG-21s, possibly vectored towards the area by North Vietnamese listening posts, also headed in that direction. Disco had detected them, and one of the controllers radioed a simple, quick transmission to Ritchie: "Steve, they're two miles north of you." Ritchie immediately turned north, and spotted a single MiG-21, in the words of historian John Sherwood, "a perfect target." Ritchie knew from experience that no fighter pilot likes to fly alone in a combat zone, and the VPAF was no exception. Dropping his external tanks, Ritchie shot past the MiG at just under supersonic speed and soon came upon a second MiG-21 following behind. It had indeed been the VPAF's classic entrapment move. Ritchie turned hard towards the MiG, which made an equally hard turn. As the two made a head-on pass, Ritchie barrel-rolled up and over, ending up behind the MiG. His first Sparrow guided perfectly, and the MiG-21 broke up in a spectacular fireball. Ritchie vaulted his Phantom over it as Paula Four (flown by Lieutenant Feezel, who had been Ritchie's wingman on 10 May), radioed that he was under attack by the remaining MiG-21. Ritchie engaged his afterburner and fired a Sparrow, despite being below minimum range, as the MiG turned towards him. Neither Ritchie nor deBellevue expected the Sparrow to guide, but as Ritchie prepared for a gun pass, the Sparrow suddenly made an impossible 25-G, 90 degree turn and struck the MiG-21 dead center. The MiG-21 was literally torn apart. Ritchie's groundwork had paid off.<sup>279</sup> Neither Vietnamese pilot could have survived. Ross and Imaye's stricken Phantom finally succumbed to the damage, and both pilots ejected successfully over Thailand. It was the second victory for Ngu (who had scored his first flying MiG-17s on 20 May 1967), the second and third for deBellevue, and third and fourth for Ritchie, who had tied Robin Olds' record.

The VPAF slightly evened the score on 10 July. A training flight of two MiG-17s was flying near Kep when they spotted F-4Js of VF-103 from USS *Saratoga*. Knowing these F-4s were likely on a MiGCAP mission, the Vietnamese ground controllers ordered the trainees to land at Noi Bai immediately. Instead, one of them, Han Vinh Tuong dropped his tanks and attacked one of the Phantoms, shooting it down with

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<sup>278</sup> Hanak, p. 98; Hobson, p. 231; Toperczer, MiG-21 Units, p. 62.

<sup>279</sup> Sherwood, pp. 245-247.

cannon fire; Lieutenants Robert Randall and Frederick Masterson ejected and were captured. As Tuong fell back to cover his wingman, Hoang Cao Thang, a missile from one of the remaining F-4Js destroyed his MiG-17, killing Tuong. No Navy kills are claimed for this date, so the identity of the F-4J's crew remains a mystery. It is also a possibility that Tuong was killed by a SAM, though not likely; even less likely is that Tuong got shot down by his own wingman, as the MiG-17s were configured for training and would not be carrying missiles. Tuong's kill was the last for the venerable MiG-17, and the F-4J was the last American aircraft to be downed by cannon fire in the Vietnam War.<sup>280</sup>

The initiative switched back to the USAF on 18 July, in more ways than one: Noi Bai was the target, and it drew a response from the VPAF. Between two and four MiG-21s were scrambled, and one made a pass at the MiGCAP flight, four F-4Ds of the 432<sup>nd</sup> Wing. The flight split up, with the second element breaking off to engage the first MiG-21, and the first element covering the strike force, which was being pursued by the other MiGs. Leading the element was Lieutenant Colonel Carl Baily, with Jeff Feinstein flying as his WSO. At three miles distance, Feinstein locked the radar onto a MiG-21 and Baily salvoed off all four Sparrows. All four missed as the MiG dived to get away. Baily rolled in behind and fired off a Sidewinder as the MiG leveled out low above the forested foothills of Thud Ridge. The Sidewinder took off the MiG-21's right wing and it tumbled into the ground. The pilot managed to eject, but was shot directly into a stand of trees; he died of his wounds a few days later. Cold-blooded as it may seem, this victory tied Feinstein with deBellevue.<sup>281</sup>

The pendulum swung again almost a week later, when two MiG-21s of the 921<sup>st</sup> Regiment, flown by Nguyen Tien Sam and Ha Vinh Thanh attacked a 366<sup>th</sup> TFW MiGCAP flight. Sam struck a F-4E flown by Captain S.A. Hodnett and Lieutenant D. Fallert with a single Atoll before the other Phantoms forced he and Thanh to disengage. Later, two 927<sup>th</sup> Regiment pilots, Le Thanh Dao and Truong Ton reported engaging Phantoms heading towards the sea, with both pilots claiming kills. Thu also claimed shooting down a Phantom, but Hodnett and Fallert's Phantom—they were forced to eject over the Gulf of Tonkin, where

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<sup>280</sup> Hobson, p. 231; Toperczer, MiG-17 and MiG-19 Units, p. 56.

<sup>281</sup> Hanak, p. 99; Toperczer, MiG-21 Units, p. 62.

they were rescued by the US Navy—was the only American aircraft lost on 24 July. Given the circumstances, it is quite possible that Dao and Ton engaged the same MiGCAP flight, and Dao thought he had shot down Hodnett and Fallert's probably burning F-4E. Though the VPAF was holding its own in June and July, some indication of the way the air war was gradually going is indicated by the fact that all four pilots had to fight their way back to Noi Bai to land. Dao and Ton had planned to land at Kep, but diverted to Noi Bai under the cover of the ground guns. Sam and Thanh had a more harrowing experience: they were attacked by Phantoms as they came in to land at Noi Bai. Thanh landed without incident, but Sam spotted a F-4 closing into missile range as he lowered his landing gear. Sam turned into the Phantom, which broke off the attack; Sam then made a hard landing on Noi Bai's taxiway. He had barely touched down when another F-4 roared over his head from the opposite direction. <sup>282</sup>

If the USAF and the VPAF had been trading blow for blow throughout July, the two enemies split the difference at the end of the month, on 29 and 30 July. On the former date, the USAF attacked targets along the Northeast Railroad, a perennial hot spot, and almost guaranteed a reception from Kep's MiGs. Once more, Baily and Feinstein led the 432<sup>nd</sup>'s MiGCAP F-4Ds. As they flew south of Hanoi, Red Crown warned them of three MiG-21s taking off from Noi Bai. Feinstein was able to hold an intermittent contact from six miles out, and another member of the flight spotted a MiG-21 directly ahead. The MiG had spotted the Phantoms as well, and dived for the ground. Feinstein showed his skill with the radar and maintained a solid lock on the evading MiG; Baily launched three Sparrows, two of which hit. The MiG-21 exploded in a comet of fire. As Baily pulled away from the doomed MiG, Feinstein spotted a F-4 on fire as well: Nguyen Tien Sam, recovered from his close call five days before, had slipped in behind the 432<sup>nd</sup> MiGCAP and had shot down a F-4E from the 366<sup>th</sup>, which was escorting the chaff bombers. Captains James Kula and Melvin Matsui were able to eject and were captured, adding two more names to a rather long roster of MiG victims. Two more were nearly added ten minutes later, when a F-105G flown by Majors T.J. Coady and H.F. Murphy attacked a MiG-21. As Coady launched a Sidewinder, the missile

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<sup>282</sup> Hobson, p. 233; Toperczer, MiG-21 Units, pp. 62-63.



exploded, badly damaging the Thud's right wing. Coady was able to get to the sea before he and his backseater had to abandon the aircraft. Sam escaped Baily's F-4Ds and returned to Kep.

Another man who had escaped death and the Hanoi Hilton, Stanley Imaye, got revenge for his earlier shoot down at the hands of a MiG. Another MiG-21 engaged the chaff bomber MiGCAP, now down to three, maneuvering into position behind the leading element. Imaye and his pilot, Lieutenant Colonel Gene Taft, emulated Sam's tactic, slipped behind the MiG as its pilot concentrated on the attack, and fired a single Sparrow, destroying the MiG-21. The next day, Sam's regimental comrade Nguyen Duc Soat added to his growing list of victories when he hit a F-4D of the 432<sup>nd</sup> Wing with Atolls. Captain G.B. Brooks coaxed the damaged F-4 well out into the Gulf of Tonkin before he and his WSO, Captain J.M. McAdams, were forced to eject. They were picked up by a Navy helicopter.

29 and 30 July had been busy days: Baily had scored his second kill, Feinstein his fourth, tying him with Ritchie. Baily gave the credit to Feinstein, saying, "When you get them head-on, the guy with the radar does all the work. I just sat up front and squeezed the trigger." There was something of an ace race going on the "other side of the hill" as well, as Sam and Soat had both scored their third victories.<sup>283</sup>

*Aces High: The Closing Months of Linebacker, August-September 1972*

On 19 July, Le Duc Tho and Kissinger met for the first time since the beginning of the Linebacker attacks. Kissinger immediately noticed that Tho's strident tone had disappeared, and that Hanoi had changed its stance on a few issues since 2 May as well, namely Thieu's removal and the unconditional withdrawal of all American forces. Undoubtedly, this was due to the fact that the Spring Offensive's initiative had clearly shifted to the favor of the ARVN.

Other than those concessions, however, the talks remained largely deadlocked. Nixon had lost confidence in them until after the election, which he knew the North Vietnamese were following closely, but allowed the talks to continue throughout August and early September. On 8 August, Admiral McCain recommended

that Linebacker intensify another notch, devoting half of all naval air assets to attacking North Vietnam, and asking that the USAF increase their efforts as well. The USAF agreed, but poor weather was to plague both sides during August.<sup>284</sup>

The month began on 8 August with a kill by the Navy's VF-103, who had lost an aircraft to a MiG-17 in July. The *Saratoga* had launched a small raid on Vinh in the panhandle at dusk, and because a MiG-21 had been seen at Vinh, a MiGCAP section of two F-4Js was assigned to cover the mission. Flying the lead aircraft was Lieutenant Commander Robert Tucker, Jr., and Lieutenant (jg) Stanley Edens. Because their wingman's radar failed, Red Crown held that crew over the Gulf and sent Tucker over the coast of North Vietnam more or less alone, a somewhat risky move in the darkness. It did have the advantage of clearing the airspace, since the strike aircraft were well to the south of Tucker's interception point; he could engage at BVR without risking friendly fire. The intercept went off to near perfection: Edens locked on with his radar, and despite the MiG pilot's dive to break contact, Edens was able to quickly reacquire. Tucker fired two Sparrows and destroyed the MiG-21. It was the only Navy Sparrow kill during the Linebacker operation.<sup>285</sup>

The next victory, on 12 August, was a joint operation: a Marine pilot and a Navy backseater, flying a USAF F-4E. Captain Lawrence Richard was on an exchange tour with a unit deployed for Linebacker, while Lieutenant Commander Michael Ettel had been at Udorn RTAFB, also on an exchange tour, with a weather squadron. When the weather squadron was disbanded, Ettel existed in a sort of bureaucratic limbo, flying with various squadrons until his tour was up. Once Richard arrived, the USAF put their two representatives of the rival services into one crew. It proved to be a good match.

Richard was leading three F-4Es of the 432<sup>nd</sup>, escorting a single RF-4C reconnaissance Phantom. The mission was to photograph targets on the Northeast Railroad, which was coming under increasing pressure on the rare days the weather cleared—a secondary mission of the RF-4 was to collect weather data. As the flight passed over the Red River between Yen Bai and Hanoi, Red Crown warned them of MiG activity.

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<sup>283</sup> Hanak, pp. 99-101; Hobson, p. 233; Toperczer, MiG-21 Units, p. 63.

<sup>284</sup> Clodfelter, pp. 160-161.

When the MiG-21s got within 30 miles, Richard turned the flight to intercept. Apparently in the heat of the moment, the unarmed RF-4 was not warned that Richard intended to fight the MiGs, and thought that the flight was turning for home, the usual occurrence when RF-4 flights had MiGs in the area. In the ensuing fight, the RF-4 crew was just as surprised as the MiGs. Richard ordered the flight to reduce speed to keep their smoke trails low, then sighted two MiG-21s, which were making a slow left turn in anticipating of getting behind the Americans. Unseen in the clouds, or apparently by North Vietnamese radar, Richard's element dived in behind the MiGs, and when Ettel locked on, fired a Sparrow. "Something must have told him to look back just then," Richard recalled, and the VPAF pilot made a hard turn, just avoiding the Sparrow, passing Richard canopy to canopy. The VPAF lead pilot left his wingman alone—either the second MiG-21 was flown by a trainee who froze or the leader failed to warn him of enemy aircraft, for the MiG took no evasive action as Richard downed him with a Sparrow.<sup>286</sup>

The USAF's "hot run" continued three days later on 15 August, and four days after that on 19 August. In both cases, MiG-21s engaged chaff-dropping F-4s. On the 15<sup>th</sup>, Captains Frederick Sheffler and Mark Massen were flying such a Phantom, when two MiG-21s got past the escort and overshot the chaff bombers, which had turned into them. The lead pilot of the chaff flight could not get a lock on the leading MiG-21, so he moved aside to give Sheffler a shot. Massen quickly had the solution and Sheffler fired, shooting down the MiG-21 with a single Sparrow, the pilot attempting a break too late. As the first MiG fluttered down burning, the second had turned and flew between the two chaff flights. VPAF records list both MiGs as having been lost, although Sheffler and Massen only claimed one aircraft; it is mentioned in Sheffler's combat report that there was an engagement with the second MiG, but no additional kills were claimed. Sheffler thought that perhaps the reason why the MiGs attacked the chaff flight was because they assumed the Phantoms were unarmed. VPAF records tell a different story: the flight, led by veteran Dang Ngoc Ngu, had their GCI fail to warn them of the American fighters and waited too long to vector them to a safe airfield. Ngu may have been one of the two MiG pilots reported killed; he is not mentioned in subsequent

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<sup>285</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, pp. 79-80.

<sup>286</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, pp. 81-82.

accounts, though this by itself does not mean he was indeed lost. It was the 8<sup>th</sup> TFW's first victory since early 1968, their only of 1972, and the last from the legendary Wolfpack.<sup>287</sup>

On 19 August, Captains Sam White and Frank Bettine were part of the appropriately callsigned Pistol Flight, a four-ship formation of F-4Es covering the day's chaff bombers, as well as a flight of F-105 Wild Weasels. As the Weasels began to search for targets, playing cat-and-mouse with SAM sites near "MiG Ridge" north of Hon Gay, Red Crown spotted a formation of two MiG-21s heading east from Hanoi at low altitude. Pistol Flight turned to engage, the pilots straining to pick out the MiGs, while their backseat WSOs divided their time between the radar and watching the sky behind them. The latter saved Pistol Flight that day as a single MiG-21 attacked them from behind, having been masked from Red Crown's radars by the low ridge below. Pistol Two's backseater shouted a warning, and White climbed away from the MiG, rolling upside down at the apex of his climb to keep the MiG in sight. As he watched, the VPAF pilot went for first Pistol Four, and then Pistol Lead and Two, but was in position to shoot at neither. He then apparently decided to head for home, and White pounced, diving in from behind. The MiG-21 pilot was no novice: he climbed and then rolled left to kill his airspeed and force White out front. White was not having any, however, and rolled right, coming up below and behind the MiG-21, in one of its many blind spots. As the VPAF pilot made a gentle turn to try and find the F-4, White fired two Sparrows. At least one, possibly both, hit, and the pilot ejected as the MiG spun into the ridge. White selected Sidewinders, intending to attack the wingman MiG, but that pilot was already fleeing for Noi Bai, four more Phantoms on his tail.; the Vietnamese made it to Gia Lam instead. It was a fitting end for Sam White—it had been his last mission in Southeast Asia, and he buzzed the runway in true fighter pilot fashion when they returned to Takhli.<sup>288</sup>

The VPAF got its sole victory in August on 26 August, over the Laotian border. While South Vietnam-based F-4s rarely ventured north of the DMZ, a large 101-aircraft strike on the Xuan Mai barracks and storage facility southeast of Hanoi. To increase the number of escort and support flights, VMFA-232 based

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<sup>287</sup> Hanak, pp. 101-102; Toperczer, MiG-21 Units, p. 63.

<sup>288</sup> Drendel, p. 43.

at Nam Phong sent a flight north. As the Marines orbited north of the Sam Neua area of Laos, they were vectored towards a flight of MiG-21s heading in their direction. A communications breakdown and radio problems led to the Marines losing track of the MiGs. The VPAF had no such troubles however, and Nguyen Duc Soat of the 927<sup>th</sup> Regiment swept out of the clouds and shot down the F-4J of Lieutenants Samuel Cordova and D.L. Borders with a single Atoll, his fourth victory of the war. Borders was rescued, but Cordova disappeared. His remains were returned in 1988; the area where they went down was known to be one where few Americans returned from alive, due to the presence of the Pathet Lao. This was the only loss of a Marine aircraft in air-to-air combat during the Vietnam War (as opposed to Marine-flown Navy or USAF aircraft).<sup>289</sup>

One of the reasons why Cordova and Borders were shot down was the failure of a new system known as Teaball. Developed by Operation Bolo veteran William Kirk, Teaball was located at the USAF's special operations base at Nakhon Phanom, Thailand. Its purpose was to collect real time (instantaneous) data from the various American signals intelligence units operating around Southeast Asia, including "Burning Pipe" RC-135Cs, "Combat Apple" RC-135Ms (both converted from KC-135 tanker airframes), and "Olympic Torch" U-2Cs orbiting high over Laos. The latter also acted as a communications link. These aircraft listened in on North Vietnamese radio chatter as well as analysis of radar and communications data and passed it to Teaball through datalinks. Teaball also was able to "see" the radar picture as seen by the Disco EC-121s and Red Crown picket ships, as well as Navy EA-3B Deep Sea SIGINT aircraft. All of the data was then combined into a highly secret supercomputer system developed by the National Security Agency known as Iron Horse. When it worked, Teaball gave its operators the best overall view of anyone in Southeast Asia of the air picture over North Vietnam, and could give highly accurate warnings of MiGs that were passed on by Disco and Red Crown. The problem with Teaball was its unreliability; it was ahead of its time, and the technology was not quite perfected. When it failed, Red Crown was forced to become a radio relay as well as fighter controller, and as a result, the Marine flight got behind the information curve,

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<sup>289</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers 1972-73, p. 82; Hobson, pp. 234-235; Toperczer, MiG-21 Units, p. 63.

with fatal results. Teaball was classified at the time; most of its data was passed off as Red Crown radar intercepts.<sup>290</sup>

When Teaball did work, the results could be spectacular. 28 August was the last dogfight of the month, but it was an especially significant one for the USAF. Flying MiGCAP duties on this date was Buick Flight, four F-4Ds led by Steve Ritchie, with Charles deBellevue flying in his customary position as his WSO. As the strike force headed home, away from the target, Red Crown—cued by Teaball data—sent out a MiG warning as four MiG-21s took off from Noi Bai. DeBellevue picked them up soon after, using Combat Tree to differentiate between friendly F-4s and enemy MiGs. A combined effort by his reading of the onboard radar, and Red Crown and Disco radar operators, which kept the MiGCAP appraised of all changes in heading, altitude, and speed of the MiG-21s, allowed Ritchie to keep a picture of the situation in his head—the epitome of situational awareness. The result was that Ritchie was able to lead Buick underneath the MiG-21 flight, climb behind them, and fire two Sparrows completely unseen by either the VPAF pilots or the GCI controllers. The Sparrows were not quite in good parameters for a kill, but it forced the targeted MiG to turn, setting up deBellevue for a better lock. The fourth Sparrow launched did not miss, and the USAF had its first ace of the Vietnam War.

Ritchie was able to indulge in the impromptu airshow that Cunningham had missed, but both men had similar experiences when they were finally on home ground—they were first complimented by the men who had made it possible, their ground crews. In Cunningham's case, a *Constellation* crewman told him, "We're glad you shot down three MiGs today and became aces, but we're even happier you're back with us."<sup>291</sup> Ritchie's crew chief, Sergeant Reginald Taylor, expressed similar sentiment when he climbed up the ladder after the F-4 had landed. To DeBellevue, it was quite simply the teamwork between Ritchie and himself, as well as the gigantic support they had behind them on 28 August: "I know what Steve is thinking on a mission and can almost accomplish whatever he wants before he asks."<sup>292</sup> As was the custom in Vietnam,

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<sup>290</sup> Gilles van Neederveen, "Signals Intelligence Support to the Cockpit." Command and Control Research Program (CCRP) website ([www.dodccrp.org](http://www.dodccrp.org)), 1, 13.

<sup>291</sup> Drendel, p. 66.

<sup>292</sup> Hanak, p. 103.

rather than risk Ritchie's possible capture or death, he was sent home to more accolades, eventually rising to the rank of Brigadier General.

Yet the war did not end because both Navy and Air Force now had their aces; certainly the pilots who still had to finish their tours—or in the case of the VPAF, fight until the war was over or they were killed—were ready to emulate Cunningham and Ritchie. In the South, the ARVN were now on the offensive, driving on Quang Tri, which would be retaken on 16 September. In the North, the weather was clearing, allowing the Americans to quadruple the amount of sorties flown. New technology was further added to the fight: LORAN navigation systems were installed, allowing for better poor weather navigation and bomb delivery, and on 25 September, a wing of F-111A Aardvarks were deployed to Southeast Asia. The F-111 had a disastrous introduction to war in the abortive Combat Lancer program in early 1968, but its many problems had been corrected, and it now began an enviable combat record, attacking at high speed and at night. The North Vietnamese were now being struck around the clock.<sup>293</sup>

As a result of the better weather and corresponding increased tempo, air combat occurrences resulting in kills doubled during September. The USAF scored its first kill on 2 September, when a single MiG-19 attacked a mixed Wild Weasel formation of F-105Gs and F-4Ds, the latter with the 388<sup>th</sup> TFW, near Noi Bai. The MiG pilot fired a K-13 that missed the lead Thud by less than twenty feet, then attempted to make a gun pass on the second F-105 in line. This too was unsuccessful, and as the MiG-19 rolled inverted to make a try for home, it flew directly in front of the third aircraft in the formation, a F-4D crewed by Major Jon Lucas and 1<sup>st</sup> Lieutenant Douglas Malloy. Lucas fired a Sparrow that destroyed the MiG-19, the pilot ejecting.<sup>294</sup>

9 September was the first peak of the month. On this date, a strike force went north to attack the oft-struck Thai Nguyen steelworks and powerplant, covered by a MiGCAP, Olds Flight, drawn from the 432<sup>nd</sup> Wing. This was another mixed unit, with three F-4Ds and one gun-equipped F-4E. Flying in the backseat of the lead F-4D was Charles deBellevue, Steve Ritchie's erstwhile backseater; both he and Jeffrey

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<sup>293</sup> Clodfelter, pp. 161-162.

<sup>294</sup> Hanak, p. 103.

Feinstein had four kills each. As the flight crossed the Red River, there was no question that MiGs were aloft, as the strike force came under attack from both MiG-19s and MiG-21s near Kep. As the MiGCAP accelerated east, Disco warned them that the MiGs were egressing directly towards them. Madden decided to set up an ambush near Noi Bai and wait.

At five miles out, deBellevue locked on a MiG-21 and Madden closed in, seeing his quarry on landing approach to Noi Bai, with landing gear and flaps down. Madden fired two Sparrows, both of which did little more than warn the VPAF pilot he was under attack. Thinking quickly, the pilot raised his landing gear and flaps and slammed the throttle forward, climbing away from the runway and causing Madden to overshoot. As the MiG pilot evaded one attack, however, he found himself under fire from Olds Three, Captain Calvin Tibbett and Lieutenant William Hargrove. After firing two Sidewinders ineffectually, Tibbett shot down the MiG-21 with cannon fire, the pilot ejecting.

Madden ordered the flight back to their assigned station near Yen Bai, when Disco warned them of more MiGs—this time, MiG-19s. The Americans spotted the MiGs first, and Olds Flight turned hard to get in behind the two VPAF aircraft. Finally seeing the four F-4s, the MiG-19s dropped their tanks and turned hard, trying to get away, but they were “behind the curve” and could not catch up. As Madden and deBellevue strained against a punishing eight-G turn, Madden fired a Sidewinder that struck the lead MiG-19 in the tail. As it went down on fire, Madden came out of the turn, dived to pick up airspeed, and came up directly under the second MiG-19. Another Sidewinder shot later, and the second MiG-19 rolled over and crashed in the rice paddies below. In an engagement lasting less than two minutes, Madden had scored two kills—and deBellevue had become the leading American ace of the war, with six victories. Ironically, deBellevue was not aware of it until after Olds Flight had landed back at Udorn: neither Madden nor deBellevue had seen the first MiG-19 actually crash. However, Olds Four, crewed by Captains William Dalecky and Terry Murphy, had spotted it go down as they flew out of the area ahead of the other three aircraft, having been hit by AAA fire near Yen Bai. Losing fuel, Dalecky and Murphy had to eject over Laos, where they were rescued, and their testimony, plus other crews’ and photo reconnaissance, confirmed the other MiG-19. DeBellevue, after suitable celebration, was sent home. When asked how he felt, he



replied, "I feel pretty good about it. It's the high point of my career...it's frustrating, and yet when you do shoot down a MiG, it's so rewarding."<sup>295</sup> The VPAF also claimed a kill this day, a F-4E by veteran Do Van Lanh in his MiG-21, but the only aircraft lost over Southeast Asia on 9 May was Dalecky and Murphy's. As the MiGs made their attacks near Kep, not Yen Bai, and no MiG-21s were seen by Olds Flight during the fight with the MiG-19s, Lanh's claim is unlikely.<sup>296</sup>

Two days later, the US Marine Corps scored its final victory of the Vietnam War, in the only instance where a Marine aircraft was used. VMFA-333's F-4Js were assigned to USS *America* during the summer of 1972, an arrangement common in Navy/Marine Corps practice, but to this point limited to attack squadrons. VMFA-333 was a dual role squadron, like all Phantom units, but also undertook MiGCAP duties. 11 September was one such case, with Major Lee Lasseter and Captain John Cummings leading a four-ship MiGCAP for a strike on the Co Giam SAM storage site near Thai Nguyen. Both Lasseter and Cummings were expert aviators: both had completed a tour of duty over South Vietnam, both had been air weapons training instructors, and Cummings was considered one of the most outstanding RIOs in the USMC.

After a brief mixup in timing, the Marines were sent in just ahead of the strike force, vectored against two MiG-21s orbiting near Noi Bai at 12,000 feet. Lasseter recalled that he believed it was "a big trap. We were looking right into the sun, and the bogies were repeatedly changing altitudes."<sup>297</sup> After much difficulty, Cummings was able to lock on as the Marines spotted the MiGs high and to the left. Lasseter fired two Sparrows at the lead MiG-21, which dodged both as the wingman MiG immediately disengaged. The remaining MiG-21 dived for the ground, Lasseter just behind. Poor missiles and the skill of the VPAF pilot allowed him to escape three more of Lasseter's missiles, but his last evasive maneuver—against Lasseter's last two Sparrows, fired as a desperation shot—placed him directly in front of the F-4. Lasseter fired his third Sidewinder, which hit and blew the aircraft in half. Lasseter climbed over the fireball and saw the other MiG-21 return for a run at his wingman. Lasseter called a break and fired his last missile at the MiG, which dropped a flare in an effort to decoy off the heat-seeking Sidewinder. It was unsuccessful: the

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<sup>295</sup> Hanak, pp. 103-105; Drendel, p. 32.

<sup>296</sup> Hobson, p. 235; Toperczer, MiG-21 Units, p. 64.

Sidewinder connected, but the MiG-21, despite a small fire, was able to disengage and head for home. The Marines, low on fuel, did the same. As they raced against time to rendezvous with the tankers, a SAM hit Lasseter and Cummings north of Haiphong. As with Cunningham and Driscoll some months before, Lasseter was able to keep control of the mortally wounded F-4 long enough to reach the Gulf of Tonkin, where they ejected successfully.<sup>298</sup>

The Navy officially credited Lasseter and Cummings with a single kill and a damaged. Interestingly enough, according to some aviation historians, the MiG-21 shot down by the two Marines was a MiG-21US “Mongol” unarmed trainer variant, with a Soviet instructor and a Vietnamese trainee. Certainly the MiG pilot was a skillful adversary, dodging most of Lasseter’s missiles, and from Lasseter’s account, made no offensive moves and was trying to make for Noi Bai. Moreover, Istvan Toperczer also records such a battle, and the Soviet pilot’s account of his evasive maneuvers match Lasseter’s account almost exactly. However, the Soviet pilot claimed that he and his student ejected due to fuel starvation, not a missile hit. As Lasseter and his wingman saw a fireball, this is more than likely a bruised ego on the part of the instructor. To further cloud the issue, Toperczer lists the combat happening on 11 November. This is almost certainly a misprint, as no air combat occurred in November.<sup>299</sup> The VPAF evened the score on the same day when Le Thanh Dao of the 927<sup>th</sup> Regiment once more attacked F-4 chaff bombers, not far from where the Marines met the two MiG-21s later in the day. As the MiGs made their attack run, the MiGCAP warned the chaff flight of their presence, but the F-4E crewed by Captains Brian Ratzlaff and Jerome Heeren broke in the wrong direction, directly into the path of Dao’s K-13. Both men were forced to eject and were captured. It was Le Thanh Dao’s third kill.<sup>300</sup>

The next day saw the USAF attack storage caves at La Danh, north of Hanoi, and once more it was the chaff flight that drew the attention of the VPAF. Four MiG-21s of the 927<sup>th</sup>, probably led by three-kill pilot

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<sup>297</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1972-73*, p. 84.

<sup>298</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1972-73*, pp. 83-86.

<sup>299</sup> Tom Cooper, “US Air-to-Air Victories During the Vietnam War, Part 2,” [www.acig.org](http://www.acig.org); Toperczer, *MiG-21 Units*, p. 78.

<sup>300</sup> Toperczer, *MiG-21 Units*, p. 64; Hobson, p. 235. According to Vietnamese accounts, this was Dao’s seventh kill. Toperczer’s list has it as his fourth, but his claim on 24 July 1972 remains highly questionable.

Nguyen Tien Sam, got in between the chaff bombers and the MiGCAP, both made up of F-4Es. Sam closed in and fired an Atoll, hitting the F-4E of Captains Rudolph Zuberbuhler and Frederick McMurray. Both men ejected and were captured.<sup>301</sup>

The MiGs had no time to celebrate their victory, however, as the MiGCAP of the 388<sup>th</sup> TFW came after them. Lieutenant Colonel Lyle Beckers and Lieutenant Thomas Griffin missed with two Sparrows, then closed in with two Sidewinders. One hit the lead MiG, which was set afire; Beckers finished it off with the nose cannon. As this was the same MiG-21 that had shot down Zuberbuhler and McMurray, it was almost certainly Nguyen Tien Sam who Beckers attacked. Another MiG-21 from the flight was engaged by Beckers' wingman crew, Major Gary Retterbush and Lieutenant Daniel Autrey. After expending no less than five missiles without result, Retterbush was also able to connect with the cannon, tracking the rounds up the fuselage and into the canopy. The MiG pitched up and stalled, but not before Retterbush saw the pilot slumped forward across the instrument panel, dead.

The 388<sup>th</sup> was not yet done for the day. On the afternoon strike on the Tuan Quan rail bridge, a MiG-21 made a solitary run on the strike Phantoms. The MiGCAP was in a better position this time, and the lead F-4E also loosed five missiles, none of which hit. As their flight leader fruitlessly pursued the first MiG-21, Captain Michael Mahaffey and Lieutenant George Shields, flying as wingman, spotted a second MiG-21 dive between them, going after the lead F-4. Mahaffey quickly reacted, firing a Sidewinder that destroyed the MiG—an engagement that lasted perhaps ten seconds.<sup>302</sup> The VPAF admits to all three losses on the day, but Nguyen Tien Sam evidently survived, for he was to return to action a few weeks later.

The last air combat of September once more ended in victory for the USAF, and came from the increasingly expert pilots of the 432<sup>nd</sup> Wing. On 16 September, a MiGCAP spotted a solitary MiG-21 heading down the Red River valley towards Noi Bai. It was promptly attacked by two F-4Es, the first piloted by Captains John Madden and Michael Hillard, and the second by Captain Calvin Tibbett and Lieutenant William Hargrove. The two crews had already accounted for a total of four MiG kills in

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in this author's opinion.

<sup>301</sup> Toperczer, *MiG-21 Units*, p. 64; Hobson, p. 236.

September. Madden, however, was not as lucky this time and missed with all six missiles, but Tibbett struck with his final Sidewinder. The pilot ejected as the MiG crashed, and Tibbett and Hargrove had their second kill.<sup>303</sup>

*The Last of the Aces and the End of Linebacker: October 1972*

By the end of September, the Joint Chiefs of Staff could report to President Nixon that real progress was indeed being made. The North Vietnamese were on the defensive in the south, trying to hold onto what little gains it had made against a resurgent ARVN. In North Vietnam itself, supplies of all kinds began to run short, including SAMs, antiaircraft ammunition, and food. Aviation historians Brad Elward and Peter Davies likened the situation to Germany in March 1945, just before the final collapse of resistance.<sup>304</sup> If that was the case, the VPAF continued to put up as much of a fight as the Luftwaffe had to the end. Despite the loss of between five and nine MiGs on the ground in sustained attacks on VPAF airfields on 1 October,<sup>305</sup> the MiG-21s continued to come up in that month, though with varying success.

The first air combat of the month came on 5 October, during a strike on a munitions depot near Yen Bai, and it was the VPAF who struck first. Nguyen Tien Sam, evidently recovered from his ejection a few weeks before, caught a bomb-carrying F-4D over the target and shot it down; Captains Keith Lewis and John Alpert joined their comrades in the Hanoi Hilton. This kill is confirmed by postwar records, making it Sam's fifth confirmed victory and the second VPAF ace of the war.<sup>306</sup>

The USAF responded later that day, in a strike on the Northeast Railroad with laser-guided bombs. Escorting the force was a MiGCAP of the 388<sup>th</sup> TFW F-4Es, callsign Robin, and led by Captain Richard Coe, with his backseater Omri "Ken" Webb III. Engine problems had led two of Robin Flight to abort, but Coe decided to press on with just two aircraft. As they entered North Vietnam, they were constantly

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<sup>302</sup> Hanak, pp. 105-106.

<sup>303</sup> Hanak, p. 106.

<sup>304</sup> Elward and Davies, US Navy F-4 Phantom II MiG Killers, 1971-1972, p. 86.

<sup>305</sup> Hanak, p.106.

updated by Disco as to where the MiGs were, but as the force neared the target, Webb spotted two MiG-21s to their right. This caused some confusion, as Disco was plotting MiGs coming from Noi Bai, while these seemed to be coming from China. To make things more confusing, the strike force sighted both MiG forces at roughly the same time: one of the strikers called out, "I've got MiGs at my six o'clock!" Robin Two responded with, "Are you sure? I'm at your six," to which the response was, "No, no, they're MiGs—I'm getting out of here!"

Robin Flight made two turns, having lost sight of any MiGs, but finally Coe spotted two of them at what he thought was three miles (it was actually closer; unlike many of the Navy's Top Gun graduates, this was the first time Coe had ever seen a MiG). He had not intended to fire a Sparrow, as they were so unreliable, but Webb locked on and Coe fired anyway. He was then forced to break as someone called out a MiG warning, but his Sparrow—which had been checked by his crew chief on the latter's own time earlier—guided true and knocked down one of the MiG-21s. After a brush with the other group of MiGs, both sides broke off the engagement. At first, it was thought that somehow Coe and Webb had shot down *two* MiG-21s, as Disco had never detected the ones coming from China and two explosions were seen on the ground, but as it turned out, it was merely the two halves of the bisected MiG-21 hitting the mountains. Coe attributed his victory to a discussion he had with Navy MiG killer Ronald "Mugs" McKeown earlier in the year; Webb, for his part, had predicted the night before that he and Coe would get a MiG the next day. He was right.<sup>307</sup>

Probably the most bizarre air combat of Operation Linebacker occurred the next day. A Wild Weasel flight of two F-105Gs and two F-4Es of the 388<sup>th</sup> were near Thai Nguyen when Disco warned the flight of inbound MiGs. As the Thuds turned for home, the two Phantoms looked for the MiGs, and found them in the worst place possible—behind them. Major Gordon Clouser and Lieutenant Cecil Brunson, crewing the lead F-4, engaged afterburned and went into a vertical dive with a MiG-19—increasingly rare in

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<sup>306</sup> Toperczer, *MiG-21 Units*, p. 64; Hobson, p. 238.

<sup>307</sup> Drendel, pp. 34-35. Coe and Webb also learned when they returned to Korat that one of their wing tanks had actually rolled across the belly of their F-4 in their first turn, something that could have been fatal. Their luck held, and only slight damage was done.

Vietnamese skies—on his tail. The second F-4, flown by Captain Charles Barton and Lieutenant George Watson, evaded the other MiG, a MiG-21, and got in behind the MiG-19. The MiG-21 then reversed its turn and ended up behind Barton's F-4: a daisy chain of four aircraft all heading directly at the ground at high speed. Clouser pulled out at 300 feet above a valley, but the MiG-19 pilot, either too fixated on the F-4 or unable to pull out of the high-speed dive, dived straight into the valley floor. The MiG-21 broke off the engagement rather than attempt to dogfight two F-4s. Deeming it a team effort, the USAF awarded both crews a half kill each, the second and last occurrence of this during the Vietnam War.<sup>308</sup> In the tit-for-tat dueling that was frequent in September and October of 1972, the VPAF responded the same day when Nguyen Van Nghia scored his second confirmed victory, badly damaging a 432<sup>nd</sup> Wing MiGCAP F-4E flown by Captains J.P. White and A.G. Egge. Though White was able to nurse the F-4 nearly to Udorn, loss of fuel forced him and his backseater to eject near the Thai/Laotian border.<sup>309</sup> The 388th's string of success continued two days later, when Major Retterbush, this time flying with Captain Robert Jasperson, scored his second kill. Retterbush successfully attacked a MiG-21 with cannon fire after his Sidewinders failed to fire.<sup>310</sup>

A 24-hour period between 12-13 October 1972 saw no less than two pilots become aces—one American, one North Vietnamese. Captain Myron Young and Lieutenant Cecil Brunson—the latter with a half kill credit following the 6 October maneuver battle—spotted two MiG-21s northeast of Kep and went after them. It was the classic VPAF trap: coming up behind Young's F-4E was Nguyen Duc Soat in a third MiG-21, who shot down the Phantom a few moments later. Young and Brunson ejected and were captured after almost a day of evading the North Vietnamese Army, which earned Young a near fatal beating. It was Soat's fifth confirmed kill (VPAF records list it as his sixth), making him the third—and last—VPAF ace of the Vietnam War. It was also the last kill the VPAF would score during Linebacker.<sup>311</sup>

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<sup>308</sup> Hanak, p. 108.

<sup>309</sup> Toperczer, *MiG-21 Units*, p. 64; Hobson, p. 238.

<sup>310</sup> Hanak, p. 108.

<sup>311</sup> Toperczer, *MiG-21 Units*, p. 64; Hobson, p. 238. Ironically, Young and Brunson were flying the same F-4E that Retterbush and Jasperson had scored their kill with on 8 October.

The USAF partially evened the score later in the day when two members of the 432<sup>nd</sup> Wing's "ace race," John Madden and Lawrence Pettit, detected at least two MiG-21s maneuvering to attack the strike force, once more attacking the Northeast Railroad. Madden, however, kept his MiGCAP F-4Ds between the MiGs and the strikers, so the VPAF pilots attacked his flight instead. Madden engaged one MiG-21 head-on, and the two aircraft briefly went into a scissors until the VPAF pilot lit his afterburner and dived away. Madden pursued, and watched as the MiG-21 entered a cloud bank hugging the mountains north of Kep. Both Madden and his wingman observed an explosion a few moments later, though it would be another week before Seventh Air Force confirmed Madden's maneuver kill. It was the second such kill in less than a week.<sup>312</sup>

The next day was Jeff Feinstein's. Once more "working the railroad" near Kep, the 432<sup>nd</sup> had placed a MiGCAP near the airfield. Feinstein, flying with Lieutenant Colonel Curtis Westphal and cued by Red Crown, locked on to two MiG-21s heading north from Noi Bai. Closing to within a mile of the MiGs, Feinstein maintained his lock and Westphal salvoed three Sparrows at the trailing MiG. One hit, and the pilot ejected as the MiG exploded in flames. Seeing the other MiG swinging in to attack the formation, Westphal and Feinstein drove it off but was unable to score another victory for the day. Feinstein, who had slowly built up his score from April, had finally made ace—like Soat on the other side, he was the third and final USAF ace of the Vietnam War.<sup>313</sup>

It was none too soon for Feinstein, for the air war was winding down. On 15 October, the last large-scale air-to-air battle of the Vietnam War was fought, when the VPAF made an all-out effort to intercept a Linebacker strike on a fuel storage site near Thai Nguyen. Escorting three flights of bomb-carrying F-4Ds was a single flight of 388<sup>th</sup> F-4Es and a mixed MiGCAP of F-4Ds and Es from the 432<sup>nd</sup>. The battle began when Red Crown vectored the 388<sup>th</sup>'s flight towards two to three MiG-21s at high altitude, but the MiGs pulled away and evaded into the clouds. The flight leader, Major Robert Holtz (flying with WSO Lieutenant William Diehl), ordered the MiGCAP into an orbit, to cover the strike force's egress route.

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<sup>312</sup> Drendel, p. 32; Hanak, pp. 108-109.

<sup>313</sup> Hanak, p. 109.

The MiG-21s, however, may have turned back into the fight, as Red Crown detected two MiG-21s northwest of Hanoi and vectored the 432<sup>nd</sup>'s flight, led by Lieutenant Colonel Carl Funk, towards the pair. Funk, unable to get a lock with his balky radar, cleared his wingman crew, Captains Gary Rubus and James Hendrickson, to take the shot. After two of his Sparrows either exploded prematurely or simply failed to guide, Rubus closed in and shot down one of the MiGs with cannon fire. The VPAF pilot ejected. His parachute may have been the one spotted by Holtz and Diehl some minutes later, along with a solitary MiG-21 orbiting the parachute. Thinking it might be an American in the 'chute, Holtz got behind the MiG and destroyed it with a Sidewinder.

The strike force decided to divert from their primary target and instead attacked Noi Bai itself. This drew an immediate VPAF response, Red Crown noting two more MiG-21s taking off to intercept. Foolishly, the MiG pilots leveled off in the contrail zone, leaving white vapor pointing directly at their aircraft. The last MiGCAP flight, also of the 432<sup>nd</sup>, engaged these MiGs, one of which broke down to evade the F-4D of Majors Ivy McCoy and Frederick Brown. No luck was to be had with Sparrows this day, as McCoy fired three that failed to guide. His Sidewinders were a different story, and a third MiG-21 went down in flames. No American aircraft were lost on the day; to make matters worse, the strike on Noi Bai had destroyed a fourth MiG on the ground.<sup>314</sup>

McCoy and Brown's kill was the last of Operation Linebacker. On 8 October, Le Duc Tho informed Kissinger that Hanoi would drop a demand for a coalition government in South Vietnam and Thieu's resignation, and agreed to a ceasefire in place. Kissinger accepted this and Tho's proposal of a tripartite electoral commission for elections in Saigon. Nixon was encouraged, but only slightly reduced the number of Linebacker sorties to 150 per day on 16 October, refusing to countenance a Johnson-style bombing halt. Tho then informed Kissinger on 18 October that Hanoi would accept the conditions that the US would continue to resupply South Vietnam after a ceasefire, and that the Viet Cong leadership held in South Vietnamese prisons would not be released. That was good enough for Nixon, who effectively ended Operation Linebacker on 23 October with the suspension of bombing above the 20<sup>th</sup> Parallel. Unlike



Johnson, however, Nixon kept up some pressure on North Vietnam by allowing strikes to continue in Paks One through Three.<sup>315</sup>

Tho had good reason to offer concessions. Though VPAF records are predictably sketchy, the MiG regiments had taken heavy losses. It was less the fault of the VPAF's pilots than the fact that the Americans had switched tactics. Though the VPAF was successful in contesting many Linebacker strikes, they were having to run a gauntlet of Phantom MiGCAPs from the time they took off until they landed, and the decreasing amount of spare parts and fuel also cut into training time. The USAF had also been sending its Wild Weasels against GCI guidance radars, blinding the VPAF pilots and depriving them of the control they had been trained to need. The VPAF was indeed in much the same unenviable position as the Luftwaffe had been in spring 1945: it was losing aircraft and pilots faster than they could be replaced. The end of operations north of the 20<sup>th</sup> Parallel gave the VPAF a chance to catch its breath, but unlike the Rolling Thunder years, there were no fresh supplies being offloaded across the Haiphong docks to replenish the depleted VPAF.<sup>316</sup> The VPAF continued limited offensive attacks on the Firebee drones still flitting across North Vietnam, shooting down three of them, and may have attempted to down the SR-71 Blackbirds which also flew reconnaissance sorties. Again, information on the latter is very sketchy, and intercepting the Mach 3 SR-71s, operating at over 80,000 feet, with MiG-21s limited to Mach 1.5 and 50,000 feet was an exercise in futility.

The Americans, however, had much to be pleased about from Linebacker, especially the US Navy. Top Gun had been vindicated beyond its creators' dreams, with program graduates accounting for nearly two-thirds of the kills made by the Navy and Marines during April-September 1972. The Navy had shot down 23 MiGs for the loss of only four aircraft in air combat, a great improvement on the Rolling Thunder days. The USAF, for its part, had suffered from a lack of air combat training, but the efforts of men like Lodge, Locher, Ritchie, deBellevue, Feinstein, and Madden had turned the 432<sup>nd</sup> Wing into a deadly instrument of aerial warfare through training, aggressiveness, and esprit de corps, reaching down to the ground crews and

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<sup>314</sup> Hanak, pp. 109-111.

<sup>315</sup> Clodfelter, pp. 162-163.

Disco EC-121 controllers. The improvement of Red Crown and the development of Teaball had also given the Americans an edge the VPAF could not counter. The USAF had overcome initial problems in the early period of Linebacker, where 19 MiGs had been shot down with the loss of 14 USAF aircraft in air combat, to a much improved 26 MiGs being shot down with the loss of 11 aircraft. This was good, but it could be better, as the Navy had shown, so momentum was slowly gaining inside the USAF to establish a program broadly similar to Top Gun. Finally, Nixon's relaxation of the ironclad Rules of Engagement allowed the American armed forces to fight much more effectively than they were capable of under Johnson and McNamara. Though it did not participate in Operation Linebacker, a final victor in the summer and fall of 1972 was the Republic of South Vietnam, which had proven that its armed forces, capably led and supported, could not only hold ground but launch limited counteroffensives.

Unfortunately, the war was not over yet.

### *Background to Linebacker II*

Nixon's hopes for a complete end to the Vietnam War before the November elections was stopped by a combination of friend and foe. Nguyen Van Thieu had no intention of accepting a negotiated settlement that left North Vietnamese troops on South Vietnamese soil. He also refused to enter anything resembling a coalition government with Communists. The ARVN had beaten the NVA, albeit with a great amount of help from the United States, and Thieu saw no reason to lessen the pressure on Hanoi. (Neither did a number of American generals, including General Vogt at Seventh Air Force.) He no longer felt a compromise was necessary. Nixon was somewhat sympathetic to Thieu, and agreed to incorporate some of his concerns in the final settlement.

To make matters worse for Nixon, the North Vietnamese also dragged their feet. Radio Hanoi decried the postponement of the settlement from 31 October, and Tho began to show signs of intransigence. Having gotten what was wanted—a cessation of Linebacker—Hanoi was once more playing the old game of

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<sup>316</sup> Clodfelter, p. 165.

spinning out the negotiations, hoping to wait out the Americans, knowing Nixon would face an uphill battle against Congress to attack North Vietnam again. His landslide victory over George McGovern dashed any hopes that North Vietnam would no longer have to deal with Nixon, but Hanoi was prepared to stall and wait until times were more favorable. The US Congress had shown signs of cutting off all funding to Thieu, but they would not reconvene until January 1973. On 20 November, Tho and Kissinger engaged in diplomatic sparring, with Tho attempting to link release of American POWs in the Hanoi Hilton with the release of Viet Cong in South Vietnamese prisons. Kissinger dropped some of Thieu's proposals in favor of a partial withdrawal of NVA troops from the South. Talks continued through the rest of November into December, with Tho making concessions and then reversing himself later on the same subject. Kissinger interpreted that Tho was stalling, and when the North Vietnamese inserted 17 changes into a completed portion of the peace agreement, Kissinger informed Nixon that further negotiation was pointless. Nixon agreed, and after consulting with Alexander Haig, on Kissinger's staff as military advisor, ordered the military to begin plans for Operation Linebacker II.<sup>317</sup>

### *Linebacker II Begins*

Nixon's intention was the same as the Strategic Air Command's in 1965: a whirlwind, massive attack using B-52s aimed at Hanoi itself, initially only for a three-day period but later extended to eleven days. Such an attack was intended to bring home to Hanoi the consequences of stalling on the peace agreement, and the only targets off-limits were civilian houses, the flood control dikes, hospitals, and the Hanoi Hilton. While the B-52s launched mass raids by night, the USAF and US Navy would keep up the pressure by day, using mostly precision-guided weapons, maximizing psychological impact by denying the populace of North Vietnam sleep. It was also hoped that this sort of round-the-clock pressure would further reduce the VPAF's effectiveness. Nixon announced that the attacks would begin on 18 December, less than twelve hours before the first cell of B-52s was due to arrive over Hanoi. Nixon informed Admiral Thomas Moorer,

chairman of the Joint Chiefs, “This is your chance to use military power effectively to win this war, and if you don’t, I’ll consider you personally responsible.” Nixon was also cannily launching the attack while Congress was out of session.<sup>318</sup>

The VPAF was still recovering from the losses sustained during Linebacker I, and tactics worked out to intercept B-52s had so far proved fruitless. Both the 921<sup>st</sup> and 927<sup>th</sup> Regiments were placed on full alert on 17 December, but the VPAF still faced the problem of a lack of night-trained pilots and a concerted effort by both the US Navy and USAF to pin the MiGs to the ground by flooding North Vietnamese airspace with MiGCAP F-4s. At the beginning of Linebacker II, the VPAF had 47 operational fighters (31 MiG-21s and sixteen MiG-17s) available for action.<sup>319</sup>

On 18 December, Linebacker II began for the VPAF at 7:25 PM local time, when three F-111s attacked Noi Bai. The runway was not badly damaged, so at least two MiG-21s were ordered into the air. Pham Tuan, the future cosmonaut, was one of them. His radar was jammed by the large amounts of chaff dropped by F-4s and the intense standoff ECM by the Americans, but he spotted the B-52s visually and tried to make an attack. He was forced to break off after dodging several Sparrows fired by the MiGCAP and returned to Noi Bai, which itself was under attack from several cells of B-52s. As he landed, Tuan reported that he spotted an aircraft in flames above the base. Tuan believed it was an American aircraft, and three B-52s were indeed lost that night to SAMs—but none over Noi Bai. It is more likely that it was a second MiG-21, shot down by the the quad .50 caliber machine guns of a B-52D on the bomb run. Staff Sergeant Samuel Turner, tail gunner on Brown Three, spotted two MiGs behind the cell, opened fire, and was blinded by a “gigantic” explosion. Another B-52 gunner saw the MiG-21 disintegrate. The second MiG continued to trail the formation, then broke away, which bears some resemblance to Tuan’s account of his actions.<sup>320</sup> If his account is accurate, Turner became the first enlisted man to score a victory in the Vietnam War, and the first gunner since Korea.

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<sup>317</sup> Clodfelter, pp. 163-183.

<sup>318</sup> Clodfelter, p. 184.

<sup>319</sup> Toperczer, MiG-21 Units, p. 67.

<sup>320</sup> Hanak, pp. 111-112; Toperczer, MiG-21 Units, p. 65, and Air War, p. 50.

By 22 December, Nixon extended Linebacker II until further notice; by the end of the night, eleven B-52s had been lost to SAMs since the beginning of the campaign, of which nearly 600 had been fired by the North Vietnamese. The losses were inordinately high, and Nixon demanded to know why. The answer was that Strategic Air Command failed to vary its tactics, with the result that the B-52s attacked on the same axis at the same altitude as they had the previous two nights. Half of the losses were B-52Gs that had been brought in from the United States prior to the campaign, and lacked the comprehensive ECM suite of the veteran B-52Ds. In response to Nixon's demand that losses be reduced, SAC switched tactics slightly, reducing the number of B-52s over the target at a given time, withdrawing the B-52Gs until they could be fitted with better ECM, and mixing up the flight routes inbound to North Vietnam. Seventh Air Force and the Navy weighed in by switching daylight strikes to SAM storage facilities.<sup>321</sup>

The MiG threat continued to be more of a nuisance than an actual threat. Thanks to the efforts of the skilled repair crews, the VPAF was able to keep their bases operational, but the MiG-21s were completely ineffective at attacking the B-52s, driven off by the F-4 MiGCAP or unable to lock onto the B-52s due to the intense jamming. On the night of 20 December, USAF accounts mention that a MiG-21 slightly damaged a B-52D, Orange Three, which started a small fire in the forward fuselage. The B-52 was then hit by as many as three SAMs; with the entire starboard wing afire, it crashed into a village. The MiG probably contributed to the loss of Orange Three only minimally, and VPAF records, usually quick to mention any damage, real or imagined, to B-52s, make no reference to this attack.<sup>322</sup>

On 22 December, things grew worse for the VPAF. Just after 10 PM on the 21<sup>st</sup>, a F-4D MiGCAP flight from the 432<sup>nd</sup> Wing, crewed by Captain Gary Sholders and Lieutenant Eldon Binkley, were vectored by Red Crown towards a MiG-21 contact west of Hanoi. Binkley achieved a lockon at five miles, as the MiG-21 pilot engaged his afterburner and managed to break lock. For the next forty minutes, a game of cat and mouse developed between the F-4Ds, Red Crown, and the MiG-21, from west of Hanoi to over the northern end of Tam Dao Mountain. Finally, Sholders had to break off the flight as he was short on fuel. It was not

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<sup>321</sup> Clodfelter, p. 187; Hobson, pp. 242-244.

<sup>322</sup> Hobson, p. 243.

until 24 December that he and Binkley learned their target had crashed short of Yen Bai due to fuel starvation, and they received credit for the kill. Less than twelve hours later, another MiG-21 fell to the 432<sup>nd</sup>, as a MiGCAP flight, led by Lieutenant Colonel James Brunson and Major Ralph Pickett in the lead F-4D, engaged two MiG-21s northwest of Yen Bai. As the MiGs flew by above the F-4, Brunson, carefully vectored by Red Crown once more, climbed and fired all four Sparrows. The tail of the MiG exploded and the aircraft went into a terminal spin. The wingman MiG-21 was able to escape. Why the MiGs did not spot the MiGCAP flight is unknown, but may reflect on the serious losses the North Vietnamese GCI network had taken.<sup>323</sup>

On 23 December, the VPAF claimed no less than four F-4s in air combat, which would make it the most successful day for the North Vietnamese in 1972—if it actually happened. Postwar records, however, do not bear the VPAF out. Only one Phantom is listed as lost in American records, this being a VMFA-333 F-4J near Hon Gay. The reported reason for this loss is 85 millimeter AAA, forcing the crew to bail out over the Gulf of Tonkin. VPAF records are extremely sketchy regarding these kills, listing only the 921<sup>st</sup> Regiment as being responsible, with no regard to type of Phantom (VPAF 1972 records are meticulous in naming type), the name of the pilot, or even the location. Nor is it a case of mistaken identity, for the only other American aircraft lost in Southeast Asia on that date was an EB-66 that crashed on takeoff in Thailand. With no other evidence available, this must be put down to a case of wishful thinking or outright propaganda by the VPAF.<sup>324</sup>

Nixon had cabled Hanoi on 22 December, offering to meet with North Vietnamese officials on 3 January 1973. There was no response, so Linebacker II continued. The change of tactics was paying off: on 23 December, the B-52s feinted towards Haiphong then turned and attacked Hanoi; on 24 December, the bombers approached from Laos, flew through the Chinese buffer zone, then turned south down Thud Ridge to strike Hanoi from the north. No B-52s were lost on either day, despite continued launching of SAMs and the VPAF's attempts to intercept with MiGs. To add insult to injury, another MiG-21 fell to B-52D tail

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<sup>323</sup> Hanak, pp. 113-114.

<sup>324</sup> Hobson, pp. 244-245; Toperczer, MiG-21 Units, p. 65.

guns on Christmas Eve, when Airman First Class Albert Moore detected a MiG-21 approaching from the rear of the formation. As the B-52 pilot dispensed chaff and decoy flares, Moore opened fire on the MiG at 2000 yards range and kept firing until he saw the radar contact disappear. Another B-52 crew witnessed a MiG-21 on fire, going down, and Moore was credited with a kill. He was the lowest ranking USAF aircrew to be credited with a kill during the Vietnam War.<sup>325</sup>

Nixon halted the bombing for 36 hours due to the Christmas holiday, but with nothing but silence emanating from Hanoi, Linebacker resumed on 26 December with possibly the most devastating attack on North Vietnam to date. A force of 120 B-52s from both Thailand and Guam struck ten targets around Hanoi in fifteen minutes, hitting the capital from four directions. SAMs claimed two B-52s, despite huge numbers of SAMs being salvoed at the bombers—one crewman counted 26 separate SAMs fired at his B-52 alone, before losing track.<sup>326</sup>

#### *MiGs versus B-52s: The Controversy*

On 27 December, Hanoi finally replied to Nixon's cable, agreeing to resume talks in Paris on 8 January and confirming their "willingness to settle the remaining questions with the US side." Nixon sent back his reply, stating that preliminary negotiations would begin on 2 January, formal meetings between Kissinger and Le Duc Tho on 8 January, and that the North Vietnamese would not deliberate on already-agreed upon provisions made in October. Hanoi in turn agreed the next day, but Nixon refused to let up the pressure: Linebacker II would not halt until 29 December.

If the North Vietnamese leadership was getting worried, the VPAF were past the point of desperation. No B-52s had been brought down, and (though little mention is made of losses in available records) and

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<sup>325</sup> Clodfelter, pp. 186-187; Hanak, p. 114.

<sup>326</sup> Clodfelter, p. 188; Hobson, p. 245. Much of the civilian damage done to Hanoi during Linebacker II was probably caused by spent SAMs crashing back to earth; Hanoi, predictably, informed the media that this was due to indiscriminate American bombing.

four MiGs had been lost, two of them to B-52 tail gunners. The VPAF high command ordered their pilots to press their attacks, even if they had to ram the bombers.

On 27 December, Pham Tuan, having been moved to Yen Bai to better evade the Phantoms, took off near midnight to intercept the B-52s attacking rail targets on the Northeast Railroad and near Hanoi. Operating under GCI guidance, Tuan sighted a cell of B-52s and requested permission to attack. His controller responded, "You have permission to fire twice, then escape quickly." Tuan fired two K-13 Atolls at the one of the B-52s, and later reported "huge flames were visible around the second B-52 as I broke sharply to the left...the crew of the hit B-52 was killed."<sup>327</sup> The loss of any B-52 to MiGs was a propaganda coup for the VPAF, not to mention a desperately needed morale boost. When it was announced, the USAF immediately denied the claim, thereby engendering one of the greatest controversies of the Vietnam air war: did VPAF MiGs bring down a B-52?

Examining Tuan's reported kill, he reported that he had shot down the B-52 over Hoa Binh,<sup>328</sup> that he had seen the second B-52 in flames, and that the crew had been killed. Two B-52Ds were lost on the night of 26/27 December: Ebony Two, part of a cell attacking the Giap Nhi railyard was hit ten miles southeast of Hanoi; and Ash One, attacking the Kinh No railyard, was shot down 50 miles southwest of Hanoi. To further muddy the issue, there are two Hoa Binh in the Hanoi area, southwest and southeast of the city. It is likely that Tuan intercepted Ebony Two, as the location where the B-52 was hit is close to the Hoa Binh southeast of Hanoi. Tuan's report indicates that he hit the *second* B-52, which would go against Ash One, a lead aircraft. Moreover, Ebony Two was hit on the bomb run (another fact alluded to in Tuan's report; he states that the B-52 formation dropped their bombs soon after his attack) and crashed southwest of the city—close to the other Hoa Binh in North Vietnam. Ash One was badly damaged but did not crash until it was on final approach to U-Tapao in Thailand. The only problems with Tuan's claim is that the four survivors of Ebony Two claim they were hit by a SAM, and both Ash One and Ebony Two were in a two-aircraft cell rather than the normal three, due to mechanical aborts in both cells outbound from Guam—

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<sup>327</sup> Toperczer, MiG-21 Units, p. 66.

<sup>328</sup> Toperczer, Air War, p. 63.



Tuan reports attacking a three-aircraft cell. It is still plausible that Tuan indeed did bring down Ebony Two, but there are enough questions regarding this that it must remain only possible, not certain.<sup>329</sup>

If Tuan's claim is shrouded in controversy, the VPAF's other kills for 27 December are not. Earlier in the day before Tuan's interception, a flight of F-4Es from the 432<sup>nd</sup> Wing acted as RESCAP for HH-53 Jolly Greens attempting to rescue the crew of a F-111 downed four days before. The flight was jumped by several MiG-21s, and in the resulting dogfight, Tran Viet of the 921<sup>st</sup> Regiment shot down the F-4E of Major Carl Jeffcoat and Lieutenant Jack Trimble. Both men survived the ejection and joined the F-111 crew, who were captured after a valiant effort by the Jolly Greens, on the road to the Hanoi Hilton. Viet followed up his success that very night. Possibly supporting Tuan's attack on the B-52s, Viet caught one of the MiGCAP F-4Es of the 432<sup>nd</sup> TRW at low level, also near Hoa Binh, and shot it down with a single Atoll. Captain John Anderson and Lieutenant Brian Ward survived a high-speed, low-level ejection and were captured.<sup>330</sup>

28 December saw the last major air battles of the Vietnam War, with three aircraft downed over the course of 24 hours, and evenly divided between the USAF, the US Navy, and the VPAF. The Navy struck first, attacking Radio Hanoi just south of the city in an Alpha Strike. Escorting the strike were two F-4Js of VF-142, crewed by Lieutenants (jg) Scott Davis and Geoffrey Urich. Delays in launching from their carrier, USS *Enterprise*, left the crew short on fuel when they crossed the North Vietnamese coast near Thanh Hoa, but they were nevertheless vectored north by Red Crown against a MiG-21 detected approaching the strike. Unable to try a Sparrow shot due to the crowded airspace, Davis elected to try a visual shot, and spotted the reflection off the MiG's canopy about three miles out. The MiG was angling for a shot on what Davis thought might be a F-4, so he called a break. As the MiG turned to follow the American aircraft, Davis turned behind the MiG and readied to fire a Sidewinder. He hesitated, however, as there was another F-4 in front of him as well. Davis spotted a missile launch and then an explosion, but realized the fireball was too big for a MiG-21. He was correct: the MiG had fired an Atoll and hit a RA-5C

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<sup>329</sup> Hobson, p. 245.

<sup>330</sup> Hobson, pp. 245-246; Toperczer, MiG-21 Units, pp. 66-67.

Vigilante reconnaissance aircraft, returning from a mission; it was what Davis had seen being targeted by the MiG. The Vigilante's pilot, Lieutenant Commander Alfred Agnew, was able to eject and was subsequently captured, but his navigator, Lieutenant Michael Haifley, was killed in the explosion.

Davis continued to pursue the MiG, which made a descending turn for the clouds below. The American moved to cut off the MiG and fired a Sidewinder that missed. Davis and his wingman were then nearly hit by a Sparrow fired by a third F-4 to arrive in the area, but Davis was able reacquire the MiG after going below the clouds. After another fruitless Sidewinder shot and considerable evasion by the MiG-21, Davis finally caught the MiG at fifty feet above the ground, with a third Sidewinder just as the pilot attempted another reversal. The MiG flew on for a moment, then pitched upwards and fell back into the ground in a fireball. Low on fuel, Davis headed for the sea and returned to the *Enterprise*.<sup>331</sup> The identity of the MiG-21 pilot who shot down the RA-5C and was in turn shot down is unknown, but it may have been Tran Viet; besides being credited with the two F-4Es of the day before, VPAF records also credit him with a third F-4 on the same day. It is possible that Viet mistakenly assumed that the Vigilante was a F-4 (Davis had initially assumed the same thing), and radioed his victory in before he was shot down by Davis. Little is known about Tran Viet, and he was not interviewed by Istvan Toperczer, so this is a distinct possibility.<sup>332</sup>

Combat continued into the night as the B-52s struck targets around Hanoi once more, aiming particularly for the Trung Quang railyards northeast of the capital, and SAM Site VN549, a remarkably deadly site that had already accounted for several B-52s during Linebacker II. Vu Xuan Thieu of the 921<sup>st</sup> Regiment took off from the new MiG base at Cam Thuy, near Thanh Hoa, and like Tuan was guided to the B-52s by GCI. Once he spotted them near Son La, he radioed he was attacking and that he had hit a B-52. Nothing further was heard, and VPAF reports indicate the wreckage of Thieu's MiG was found close to the wreckage of a "B-52." It was assumed Thieu had hit the B-52, which blew up so close to the MiG-21 that the flying debris claimed Thieu as well.<sup>333</sup>

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<sup>331</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers 1972-73*, pp. 87-90; Hobson, p. 246.

<sup>332</sup> Toperczer, *MiG-21 Units*, pp. 66-67.

<sup>333</sup> Toperczer, *Air War*, p. 51; *MiG-21 Units*, p. 67.

There are several problems with the VPAF theory. Thieu claimed to have made contact near Son La, which is northwest of Vinh, and was guided by GCI at Tho Xuan airbase, also near Thanh Hoa. While there were two B-52Ds lost on the night of 27/28 December—Ash Two, attacking VN549, and Cobalt One, attacking Trung Quang—neither was anywhere near Son La when they were hit. Cobalt One was hit northeast of Hanoi and the crew was forced to eject 45 seconds after being struck. Ash Two was hit, almost certainly by VN549's skilled SAM crew, near Hanoi; the pilot managed to nurse the crippled aircraft as far as Nakhon Phanom, Thailand, before the crew was forced to bail out. Assuming Ash Two went in a semi-straight line for friendly territory—given that the B-52 was badly damaged and the crew all injured by shrapnel, that seems highly likely—Thieu probably sighted the burning Ash Two and assumed his missile launch had hit.<sup>334</sup>

What happened to Thieu after he launched on Ash Two can be explained by the final air victory of 28 December. On MiGCAP duties that night were two F-4Ds of the 432<sup>nd</sup> Wing, crewed by Major Harry McKee and Captain John Dubler in the lead aircraft, and Captains Kimzey Rhine and James Ogilvie in the wingman position. Red Crown vectored the two F-4s towards a MiG-21, and the Phantoms made contact at a position “270 degrees and 92 nautical miles from Bullseye [Hanoi],” according to McKee. This would place them close to Son La. Both aircraft got a lock on the MiG, McKee firing two Sparrows and Rhine one. At least one of McKee's Sparrows and Rhine's single Sparrow hit, and the MiG exploded. Initially, Seventh Air Force accepted a half claim by each crew, but later changed it to McKee only, as his Sparrow had hit a split-second before Rhine's. Given the location, McKee's kill was probably Thieu's MiG-21; the report of B-52 “wreckage” was either parts of Ash Two, misidentified parts of Thieu's MiG, or simply wishful thinking.<sup>335</sup> Since Thieu's claim is likely erroneous, the RA-5C shot down earlier on 28 December was the last American aircraft lost in air-to-air combat in the Vietnam War.

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<sup>334</sup> Hobson, pp. 245-246. The pilot of Ash Two, Captain John Mize, was awarded the Air Force Cross for his actions in getting the B-52 to a safe bailout area, despite being wounded. The entire crew of Ash Two survived.

<sup>335</sup> Hanak, pp. 114-115.

Two more missions were launched on 28 and 29 December by the B-52s. On the 28<sup>th</sup>, the SAM launches were greatly reduced from the night before; on the 29<sup>th</sup>, they were virtually nonexistent. North Vietnam had actually run out of SAMs to fire and could get no more, and given the ineffectiveness of the VPAF's remaining MiG-21s and the ability of the B-52s to fly out of range of North Vietnamese AAA, North Vietnam lay at the mercy of the United States for the first time of the war. Many crews readied for a last "knockout blow," but Nixon suspended Linebacker II attacks above the 20<sup>th</sup> Parallel after the 29<sup>th</sup>. Hanoi had more or less accepted Nixon's terms, and though Kissinger was authorized to threaten more B-52 strikes if Le Duc Tho began stalling again, it was unlikely that the United States would actually carry out the threat. Domestic and international pressure had grown immensely—the *Washington Post* called Linebacker II "the most savage and senseless act of war ever visited," while Senators Edward Kennedy and Mike Mansfield referred to the raids as an "outrage" and a "Stone Age tactic." Another reason was that the Americans were beginning to run out of targets. The only real strategic targets left were the flood dikes and Hanoi and Haiphong itself, neither of which would be struck by the United States. Though Hanoi was quick to claim the B-52s were "carpet bombing," little damage was done to the city itself. Total casualties ran to 1600 dead—a huge reduction from the losses inflicted by Rolling Thunder—and about the same number wounded.<sup>336</sup> Antiwar activists visiting Hanoi suggested to the city's mayor to claim 10,000 dead, but the mayor refused, citing that his credibility was at stake. The effectiveness of Linebacker II was noticed by both Kissinger, who noted Le Duc Tho's attitude, and by the POWs in the Hanoi Hilton, who received the first real cordial treatment they had gotten since they were shot down.<sup>337</sup>

Though Tho and Kissinger were due to return to the Paris peace talks, Nixon still made sure the North Vietnamese saw the sword poised above their heads, even if Nixon privately knew he could not let it fall. Bombing below the 20<sup>th</sup> Parallel continued, hammering the already-battered North Vietnamese Army. The

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<sup>336</sup> Clodfelter, pp. 190-196.

<sup>337</sup> Clodfelter, pp. 195-196.

VPAF made a token effort at opposing these strikes, and American aircraft were allowed to pursue any aircraft that attacked the strike forces in the panhandle beyond the 20<sup>th</sup> Parallel. On 8 January 1973, a MiG-21 was detected heading south by Red Crown, towards a 432<sup>nd</sup> Wing MiGCAP orbiting south of Thanh Hoa. First locking on and then sighting the MiG-21, the F-4D's crew—Captain Paul Howman and Lieutenant Lawrence Kullman—fired two Sparrows. Both hit, and the MiG-21 broke into three pieces. It was the last USAF kill of the war.<sup>338</sup> The US Navy claimed the last kill of the war in general four days later, when a MiG-17 was detected off Hon Gay, looking as if it might be heading towards the Seventh Fleet. Remembering Nguyen Van Bay's attack on the *Higbee*, two BARCAP F-4Bs of VF-161 were vectored towards and away the MiG twice before being allowed to close in. The MiG frantically tried to evade the two Phantoms, but the lead F-4B, crewed by Lieutenant Victor Kovaleski and Lieutenant (jg) James Wise, stayed with the MiG and fired two Sidewinders. The first hit, and just before the second also struck, the pilot ejected. With a short dogfight that typified the air-to-air war in general, Americans and Vietnamese had met for the last time in air combat.<sup>339</sup>

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<sup>338</sup> Hanak, p. 115.

<sup>339</sup> Elward and Davies, *US Navy F-4 Phantom II MiG Killers, 1972-73*, pp. 90-91.

## ***Conclusion: Lessons Learned, 1973-Present***

### *Denouement*

The Vietnam War, at least for the United States, had ended. For North Vietnam, the events of 1972 were only a temporary setback to their long-term goals, goals they were to achieve in 1975. Air-to-air combat in Vietnam, however, was over: the VPAF would continue to fly, but their MiGs would remain largely silent after January 1973. The shadow of Vietnam and the reverberations of the war on the American military remain to this day. Yet the lessons learned over the skies of Vietnam, at a hard price, led to a renaissance of sorts among American military thinking, especially in the USAF. It would culminate in the United States' resounding string of victories in the 1980s and 1990s, to the point of today's status as the world's sole remaining superpower.

Now that relations between Vietnam and the United States have normalized, more and more information has come to light about what really happened in the skies over the North. Using that information, historians are able to reconstruct many of the dogfights and victory claims. While the Americans take their share, the VPAF is found to have badly over claimed in its list of aces and aerial victories.

### *The VPAF in the Fall of South Vietnam, 1973-1975*

North Vietnamese propaganda was quick to call Linebacker II the "Aerial Dien Bien Phu."<sup>340</sup> Claims were made of several hundred American aircraft shot down. These claims were degraded soon enough, but Hanoi to this day claims December 1972 as a victory. It is hard to support this claim. The VPAF had been rendered mostly ineffective; SAM munitions were expended; the North Vietnamese Army's ability to even conduct an adequate defense of the gains they had made were in question, according to General Tran Van Tra, commanding forces in the An Loc area; supplies of food were beginning to run low. While it is doubtful that Nixon could have forced the North Vietnamese to surrender, even if Congress had been amenable to the idea, Linebacker and Linebacker II had devastated North Vietnam's war industry. Tho's

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<sup>340</sup> Toperczek, *Air War*, p. 51.

sudden change from making demands on the United States to acquiescing to Nixon show that Linebacker II had been effective, in the short term.<sup>341</sup>

With this in mind, it is understandable that President Thieu saw an opportunity to drive the North Vietnamese completely out of his country and possibly even launch an invasion of the North. If Tra's statement is to be believed, the ARVN, with American air support, would have been able to achieve the first goal and possibly even the second. Yet the United States was past that point. When Thieu initially refused to sign the accords, citing the presence of so many NVA troops remaining in South Vietnam, Nixon threatened to sign a separate peace. Thieu, mollified by Nixon's assurances that the United States would stand behind him, signed the accords. The Vietnam War, at least for the United States, ended on 23 January 1973. The final aerial operation of the American armed forces was Operation End Sweep, the clearing of the mines along the North Vietnamese coast. Nixon stated later that "I knew that the agreement contained serious weaknesses, but I believed on balance it was sound...it was adequate to ensure the survival of South Vietnam—as long as the United States stood ready to enforce those terms."<sup>342</sup>

Unfortunately for South Vietnam, America had washed its hands of the Vietnam War; the Case-Church Amendment of August 1973 prohibited any further American involvement other than humanitarian in Southeast Asia. The NVA regrouped, rearmed with supplies brought in through a reopened Haiphong, and attacked in the third large offensive of the Vietnam War, beginning on 10 March 1975 at Ban Me Thuot and ending with the fall of Saigon on 30 April. The VPAF participated to some extent in the final offensive, mainly with resupply flights to captured South Vietnamese Air Force bases at Da Nang and Phu Bai. MiG-21s did, apparently, participate in airstrikes, but the most effective airstrikes on South Vietnamese targets were actually undertaken by captured SVAF A-37s piloted by ex-MiG pilots quickly trained on the type. Tan Son Nhut and Saigon itself came under attack on 27 and 28 April from these A-37s, one of the primary reasons why Tan Son Nhut was closed to operations soon thereafter. There are no reported dogfights between the SVAF and the VPAF during this time, and except for the Tan Son Nhut airstrike, no significant

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<sup>341</sup> Clodfelter, pp. 196-197.

<sup>342</sup> Clodfelter, pp. 199-201.

attempts were made by the VPAF to interfere with Operation Frequent Wind, the evacuation of American personnel and South Vietnamese refugees from the country. One reason may have been that these operations were covered—offshore—by aircraft from several Seventh Fleet carriers; embarked on USS *Enterprise* were the first two operational squadrons of F-14 Tomcats. North Vietnam had no intention of giving the United States any excuse to interfere. After the fighting had ended, the VPAF helped itself to large numbers of SVAF aircraft that had been abandoned by their crews, and for a time, the VPAF was equipped with a wide mix of Soviet, Chinese, and American equipment. Several units of the VPAF also relocated to American-built bases in former South Vietnam, and the Soviet Union began basing aircraft at Cam Ranh Bay from the late 1970s.<sup>343</sup> Though the VPAF was to participate with some distinction in the Cambodian Invasion of 1978, virtually all the airstrikes were flown by ex-SVAF F-5s and A-37s, and the atrocious state of the Kampuchean Air Force after Pol Pot's massacres meant that there was no air combat. No accounts of air combat have yet to come to light over the brief China-Vietnam border war of 1979, nor any from the periodic brushes between the Thais and the Vietnamese in western Cambodia during the 1980s.<sup>344</sup> The VPAF, then, fought its last air-to-air battles against Americans in January 1973. The survivors of the great battles over North Vietnam either remained in the VPAF or returned to the jobs they had before they had joined; Nguyen Van Coc rose to command of the VPAF in the 1990s, while Nguyen Van Bay retired to become a fisherman near Saigon.<sup>345</sup>

*The Shadow and Legacy: American Regensis, 1973-1991*

The Vietnam War had left wounds on the American psyche that may never fully heal. Possibly the worst affected was the US military, which had taken not only heavy losses in the war, but faced tremendous ill-

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<sup>343</sup> Toperczer, *Air War*, pp. 54-60.

<sup>344</sup> Albert Grandolini and Tom Cooper, "Cambodia, 1954-1999, Part Three." [www.acig.org](http://www.acig.org). There is an unsubstantiated report of a Thai F-5E shooting down a VPAF Mi-8, but no details are available.

<sup>345</sup> Toperczer, *Air War*, p. 3; Wetterhahn, p. 52.



will back home. Antiwar protestors spit upon American pilots who might have been sweating out their 100th mission over Hanoi less than 48 hours earlier.

Dissatisfaction, despair, and a feeling of betrayal drove many men out of the service, and for the next seven years, the US military underwent race riots, drug problems, and a serious downfall in retention rates. The Ford and Carter administrations and especially the humiliation of the Iran Hostage Crisis of 1979-80 represented possibly the lowest point of the American military in the 20<sup>th</sup> Century. This humiliation was a direct factor in the election of Ronald Reagan in 1980, and Reagan delivered on his promises to revamp and expand the military. This provided a morale boost, but the basis for that boost was already present—hammered out by the survivors of Vietnam and postwar neglect.

The US Navy had its share of problems, but the aviator community had good reason to feel a sense of accomplishment, borne of the events of 1972. Top Gun had been wildly successful, and the Navy continued to devote more resources to it, so that the training continued to be disseminated among flight crews. The Red Baron report, updated after Linebacker II, was part of Top Gun curriculum.

The USAF, while it justifiably was proud of the record achieved in Linebacker II, had a longer ladder to climb than the Navy's aviation community. Seeing the effectiveness on Top Gun on naval aviators, the USAF began working on its own version, with a slightly different goal. Studies had proven over Vietnam that most pilots were shot down in their first ten missions, even over the relatively safe zones of Pak One and South Vietnam. Fighter tactics training was dismal; the success of Olds, Lodge, Ritchie, deBellevue, and Feinstein were largely the result of two wings' determination to destroy the enemy, rather than a concerted effort by the USAF to improve its combat record. The idea that would solve both problems was the brainchild of Major Richard "Moody" Suter. Suter, who would "literally write stuff down on bar napkins," took a leaf from the Navy's 1968-69 studies and took many notes while on various deployments worldwide. When he believed he had something solid, he went to General Robert Dixon, who in turn persuaded the Pentagon. The new program, based at the preexisting Fighter Weapons School at Nellis AFB, Nevada, was named "Red Flag" for the color of the opening slide in Suter's presentation. It began on November 1975. At first, the emphasis was on air-to-air training; like the Navy, the USAF used F-5s to

simulate MiGs. Later, the program expanded to include entire strike package and rapid deployment training, played out over the Nevada desert. Accident rates soared, because once-ironbound flight safety rules were curtailed in favor of realism, but they dropped off as pilots became more and more experienced. Red Flag became a regular destination for USAF pilots in the 1980s and continues to be today, though emphasis has changed from confronting the Warsaw Pact over Central Europe to fighting a war over the Middle East.<sup>346</sup>

Able assisting in the USAF's renaissance of the late 1970s and early 1980s was Air Force Chief of Staff William Creech. Creech, like Suter, had taken note of what was wrong with the USAF during and immediately after Vietnam: besides the poor operational training, a McNamara-style "bean-counting" bureaucracy had crept into the USAF, in which wing commanders were more concerned with having the books straight than training for possible war. Maintenance rates were horrible; morale, particularly among enlisted men, was low; finally, a culture of lying had taken root. If the wing commander demanded that so many pounds of fuel must be expended by a certain date, a crew would fly a F-4 around the base until the required allotment of fuel was taken care of. Effectiveness was graded more by how many lawns were mowed and how many DUIs were avoided on the base than how many aircraft were available for combat.

Creech was a member of the "Fighter Mafia," a group of young majors and lieutenant colonels who looked more to Robin Olds as a role model than Curtis LeMay. As emphasis slowly shifted from apocalyptic nuclear warfare to a possible conventional war against the Red Army in West Germany, the fighter pilots of Tactical Air Command began to gain more prominence, especially as the older "bomber generals" retired. Creech's reforms, which emphasized morale, pride, and realistic combat training left a lasting impression on the USAF and helped it recover from the trauma of Vietnam.

The lessons of Vietnam were not lost on aircraft manufacturers, either. While the F-4 had performed superbly in a role for which it was never intended, replacements for it began production just as the Vietnam War began to draw to a close. Both services received pure fighters—the Navy's F-14 Tomcat and the

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<sup>346</sup> Michael Skinner, and George Hall, Red Flag: Air Combat for the 1990s. (Osceola, WI: Motorbooks International, 1993), pp. 16-24.

USAF's F-15 Eagle—and later added multirole aircraft in the form of the F/A-18 Hornet and F-16 Falcon respectively. All four aircraft emphasized maneuverability, all-around vision, ease of maintenance, and retained an internal gun. Cockpits were laid out according to crew comfort and the necessity of situational awareness in air combat. This included holographic Heads-Up Displays, projecting all pertinent flight information on a screen level with the pilot's eyes, and HOTAS (Hands On Throttle And Stick) that placed all immediate flight functions as buttons on the stick and throttle. Whereas a F-4E pilot would have to perform several switch functions to go from missile to gun mode, looking at his instrument panel and not the world outside, any pilot in a HOTAS-equipped cockpit could do it with the press of a button. Computer and, by extension, missile technology also grew in leaps and bounds during the late 1970s, culminating in the all-aspect AIM-9L Sidewinder, which could home on a heat source from any direction. No longer were aircraft limited to using heat-seeking missiles from the rear; the "Lima" Sidewinder could home in on the heat of the sun reflecting off the opposing aircraft's canopy. The invention of the microprocessor also allowed engineers to design purposely-unstable aircraft designs, where a computer could compensate for the vagaries of maneuvering at a speed unmatched by any human pilot. Turns and maneuvers suicidal for F-4 and MiG-21 pilots over Vietnam became commonplace.<sup>347</sup> The proving grounds for this new technology came in 1982 over two very different battlegrounds: the South Atlantic and Lebanon. In the first, the Falklands War between England and Argentina, British Sea Harriers—small, agile fighters equipped with AIM-9Ls—wreaked havoc on the larger, 1960s-era Mirage IIIs flown by the *Fuerza Aerea Argentina*. 23 Argentine aircraft were shot down in air combat, compared with no losses to the Sea Harriers.<sup>348</sup> The Israeli *Heyl Ha'avir* did far worse to their adversaries, the Syrian Air Force. Israel, building on lessons learned in both Vietnam and their own Yom Kippur War of October 1973, covered their invasion of Lebanon with a mixed force of high-level F-15s and low-level F-16s, all equipped with AIM-9Ls and much-improved AIM-7M Sparrows, supported by standoff ECM jamming and AEW support. The result was nothing less than a massacre: 82 Syrian aircraft fell to Israeli guns and missiles in less than a month of

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<sup>347</sup> Crosby, pp. 33-35.

<sup>348</sup> Crosby, p. 38.

fighting. The Israelis lost no aircraft to the Syrian MiG-21s and MiG-23 Floggers. The shockwaves of Lebanon reverberated through both the Western and Eastern blocs. Both conflicts proved another adage that had been learned over Vietnam: pilot quality. The British and the Israelis were trained better than their adversaries.<sup>349</sup>

The reforms of the American aerial community got their first test on 19 August 1981, when two Libyan Air Force Sukhoi Su-22 Fitters engaged two F-14s of VF-41 over the Gulf of Sidra. Reagan had allowed the Sixth Fleet to set its own rules of engagement, in which aircraft were permitted to return fire without prior approval from their home carrier, much less Washington. The Tomcats downed both Su-22s in the space of two minutes.<sup>350</sup> Two years later, during the American attempt at peacekeeping in Beirut, Lebanon, the US Navy was ordered to launch retaliatory strikes on Syrian SAM positions in the area—but once more, the timing, type of ordnance, and altitude were dictated by the Pentagon. The result of this return to Vietnam-style micromanagement was the loss of three aircraft, including one pilot, with mixed results of the bombing. The Sixth Fleet's commanders protested vehemently against the micromanagement, and Reagan, unlike Johnson, listened. In subsequent operations, namely Operation El Dorado Canyon against Libya in 1985, the White House dictated only broad ROE.<sup>351</sup> This trend was continued in what is considered the American military's complete return from the nadir of Vietnam: Operation Desert Storm. President George H.W. Bush refused to interfere in day-to-day operations in Kuwait and Iraq, while the entire Desert Storm mission planning staff, in both the US Navy and USAF, was done by veterans of Rolling Thunder and Linebacker. Desert Storm targeted the Iraqi Air Force from the first strikes, rendering it completely combat ineffective by the second week of the campaign. 45 Iraqi MiGs, Sukhois, and Mirages were shot down for the loss of a single F/A-18 in air combat over the course of the two-month campaign, 36 of the kills achieved by USAF F-15s.<sup>352</sup> One F-15 pilot said, "With the big exception of people shooting at you, these

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<sup>349</sup> Hall, p. 26-27.

<sup>350</sup> Drendel, p. 79-80.

<sup>351</sup> Tom Cooper and Eric Palmer. "Disaster in Lebanon: US and French Operations in 1983." [www.acig.org](http://www.acig.org).

<sup>352</sup> Crosby, p. 39.

missions are easier than the ones we flew at Red Flag,” an apt comment on the effectiveness of post-Vietnam training.<sup>353</sup> The trend continues to this day.

#### *Truth Versus Truth: Kill Claims*

From 1964 to 1975, the Vietnamese People’s Air Force claimed to have shot down between 163 and 190 American aircraft in air-to-air combat. 16 VPAF pilots are listed with five or more kills:<sup>354</sup>

- Nguyen Van Coc (9)
- Nguyen Hong Nhi (8)
- Mai Van Cuong (8)
- Pham Thanh Ngan (8)
- Nguyen Van Bay (7)
- Dang Ngoc Ngu (7)
- Luu Huy Chao (6)
- Vu Ngoc Dinh (6)
- Le Hai (6)
- Le Thanh Dao (6)
- Nguyen Ngoc Do (6)
- Nguyen Dang Kinh (6)
- Nguyen Doc Soat (6)
- Nguyen Tien Sam (6)
- Nguyen Van Nghia (5)

However, after research and comparison to known American losses, the claims drop considerably:

- Nguyen Van Coc (9)
- Nguyen Hong Nhi (1)
- Mai Van Cuong (0)
- Pham Thanh Ngan (0)
- Nguyen Van Bay (1.5)
- Dang Ngoc Ngu (2)
- Luu Huy Chao (1)
- Vu Ngoc Dinh (2.5)
- Le Hai (1.25)
- Le Thanh Dao (2)
- Nguyen Ngoc Do (2)
- Nguyen Dang Kinh (1.5)
- Nguyen Doc Soat (6)
- Nguyen Tien Sam (5)
- Nguyen Van Nghia (2)

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<sup>353</sup> Skinner and Hall, p. 16.

<sup>354</sup> Toperczer, *Air War*, p. 64.

Of the 16 pilots, only Nguyen Van Coc and Nguyen Doc Soat retain the full amount credited; Nguyen Tien Sam is only one off from his VPAF credit. The other pilots lose at least half their credited victories, and some, such as Mai Van Cuong and Pham Thanh Ngan, retain no kills at all.

The reasons for this go back to those listed at the beginning of this thesis: a combination of purposely-inflated claims for propaganda and morale purposes (such as giving every member of a given flight section a full victory, despite only one American aircraft actually shot down), misidentification of damage, and simple wishful thinking. Another factor worth considering is political purposes: Soat and Sam flew during Linebacker, after the death of Ho Chi Minh; VPAF records improve in their accuracy considerably after 1969, with less propaganda showing up in the narratives. This could also be reflective of the VPAF's "self-confessions" following the heavy losses taken during May-June 1972—pilots were encouraged to be up front about what went right and wrong in an effort to correct mistakes.

American kill claims suffer much less revision, with only a handful of pilots losing claims. As stated previously, the United States had little official desire to hype up air combat claims, as Vietnam was an unpopular war. There was not the same sort of heroic stereotype applied to Vietnam pilots that had been done with those who flew in World War II. While a World War II ace such as Dick Bong or Donald Gentile could expect to be feted in war bond rallies, an USAF or Navy ace at most could expect a medal from his government; from the civilian population, he counted himself lucky if he was not criticized as "a napalm dropping baby killer." The sophistication of American intelligence technology and the more extensive training of American pilots contributed significantly to more reliable claims. Furthermore, some American pilots, namely David Waldrop and Robert Doremus, had their claims *denied* by higher command, possibly for political reasons, only to have later research confirm their victories later. Not helping the historian is the VPAF's distinct reluctance to admit any losses, which again improves in post-1969 records. One is forced to rely on the American records; it may be, as Vietnam opens up more and more, that American claims may undergo further revision.

The final tally of Vietnam War air combat shows that the combined forces of the United States shot down a total of 199 Vietnamese aircraft (all MiGs, with the exception of two An-2 Colts), the USAF with 137

victories and the Navy with 62. This is slightly different than the official tally, and reflects the changes in claims where subsequent research is able to verify or disallow claims. The VPAF is confirmed to have shot down 95 American aircraft of all types in air combat, losing roughly half their official total.

Numbers only tell a little of the story. After the end of the Vietnam War, Colonel Harry G. Summers met with a North Vietnamese general. Summers said, “You know, you never beat us on the battlefield.” The NVA general replied, “That may be true, but it is also irrelevant.” A “score” of 199 to 95 may seem to represent an American victory, but in fact, it also shows that the United States was able to achieve barely a paltry 2.5 to 1 kill ratio over an adversary they outnumbered and outgunned. Compared to ratios that approached 19 to 1 in the Pacific Theater of World War II, and the claims of 14 to 1 ratios over Korea, one can readily see why the numbers coming out of Vietnam stunned the American high command. Politics, misapplied technology, and lack of training all play their part, but one must also pay tribute to the considerable courage and ingenuity of the North Vietnamese pilots.

As mentioned earlier in the introduction of this thesis, the Hollywood notion of “knights of the air” is a myth. As aviation historian George Hall put it, “Lie, cheat, and steal in the cockpit. Leave chivalry at home with your dress whites.” Nevertheless, the survivors of eight years of savage air-to-air combat can look back on their experience with pride, no matter what their nationality. Vietnam is one of those wars where both sides claimed victory. While the North Vietnamese certainly have a more valid claim to victory in the overall historical picture, the air war is a little different. American pilots are able to look back on Linebacker as paving the way for the successful wars of the 1980s and 1990s, and rightfully see courage in the image of pilots fighting their way into North Vietnam during Rolling Thunder, going against both North Vietnamese defenses and their own government. So too can VPAF pilots look back on their experiences in the same vein as the British Royal Air Force sees their stand in the Battle of Britain. At 30,000 feet above sea level and at speeds just under that of sound, there are no politics, no propaganda—only survival, which in its way is its own victory.





# ***Vietnam War Air-to-Air Claims List***

<u>Date</u>	<u>Victor A/C</u> <u>Confirmed</u>	<u>Unit</u>	<u>Pilot/Crew</u>	<u>A/C Shot Down</u>	
<b>1964</b>					
2/16/64	T-28D	919FR	Nguyen Van Ba	C-123B	Yes
<i>Yearly Total:</i>			<i>Total To Date:</i>		
VPAF		1	VPAF		1
USAF		0	USAF		0
USN		0	USN		0
<b>1965</b>					
4/3/65	MiG-17	921FR	Pham Ngoc Lan	F-8E	No
4/3/65	MiG-17	921FR	Phan Van Tuc	F-8E	No
4/4/65	F-100D	2 <sup>nd</sup> AD	Donald Kilgus	MiG-17	Yes
4/4/65	MiG-17	921FR	Tran Hanh	F-105D	Yes
4/4/65	MiG-17	921FR	Le Minh Huan	F-105D	Yes
6/17/65	F-4B	VF-21	Louis Page/John Smith, Jr.	MiG-17	Yes
6/17/65	F-4B	VF-21	Jack Batson/Robert Doremus	MiG-17	Yes
6/17/65	F-4B	VF-21	Jack Batson/Robert Doremus	MiG-17	Yes
6/17/65	MiG-17	921FR	Le Trong Long	F-4	No
6/17/65	MiG-17	921FR	Unknown	F-4	No
6/20/65	A-1H	VA-25	Charlie Hartman	MiG-17	Yes
	A-1H	VA-25	Clinton Johnson		
6/20/65	MiG-17	921FR	Unknown	A-1H	No
6/20/65	MiG-17	921FR	Unknown	A-1H	No
6/20/65	MiG-17	921FR	Unknown	F-4C	Yes
7/10/65	F-4C	2 <sup>nd</sup> AD	Kenneth Holcombe/Arthur Clark	MiG-17	Yes
7/10/65	F-4C	2 <sup>nd</sup> AD	Thomas Roberts/Ronald Anderson	MiG-17	Yes
7/20/65	MiG-17	921FR	Unknown	F-4	No
9/20/65	MiG-17	921FR	Nguyen Nhat Chieu	F-4	No
10/6/65	F-4B	VF-151	Dan MacIntyre/Alan Johnson	MiG-17	No
10/14/65	MiG-17	921FR	Unknown	F-105D	No
11/6/65	MiG-17	921FR	Tran Hanh	CH-3C	No
	MiG-17	921FR	Ngo Doan Hung		
	MiG-17	921FR	Tran Van Phuong		
<i>Yearly Total</i>			<i>Total to Date</i>		
VPAF		3	VPAF		4
USAF		3	USAF		3
USN		4	USN		4
<b>1966</b>					
2/3/66	MiG-17	921FR	Lam Van Lich	A-1H	No
2/3/66	MiG-17	921FR	Lam Van Lich	A-1H	No
3/4/66	MiG-17	923FR	Ngo Duc Mai	F-4	No
4/23/66	F-4C	8 <sup>th</sup> TFW	Max Cameron/Robert Evans	MiG-17	Yes
4/23/66	F-4C	8 <sup>th</sup> TFW	Robert Blake/S.W. George	MiG-17	Yes
4/26/66	F-4C	8 <sup>th</sup> TFW	Paul Gilmore/William Smith	MiG-21	Yes

4/26/66	MiG-17	923FR	Ho Van Quy	F-4C	No
4/26/66	MiG-17	923FR	Ho Van Quy	F-4C	No
4/29/66	F-4C	8 <sup>th</sup> TFW	William Dowell/Halbert Gossard	MiG-17	Yes
4/29/66	F-4C	8 <sup>th</sup> TFW	Larry Keith/Robert Bleakley	MiG-17	Yes
4/29/66	MiG-17	921FR?	Unknown	A-1E	Yes
4/30/66	F-4C	8 <sup>th</sup> TFW	Lawrence Goldberg/Gerald Hargrave	MiG-17	
					Yes
5/12/66	F-4C	35 <sup>th</sup> TFW	Wilbur Dudley/Imants Kringelis	MiG-17	Yes*
6/5/66	MiG-17	923FR	Unknown	F-8	No
6/5/66	MiG-17	923FR	Unknown	F-8	No
6/7/66	MiG-21	921FR	Unknown	F-105	No
6/9/66	MiG-21	921FR	Unknown	F-4	No
6/9/66	MiG-21	921FR	Unknown	F-4	No
6/12/66	F-8E	VF-211	Harold Marr	MiG-17	Yes
6/12/66	F-8E	VF-211	Harold Marr	MiG-17	Yes
6/21/66	F-8E	VF-211	Philip Vampatella	MiG-17	
					Yes
6/21/66	F-8E	VF-211	Eugene Chancy	MiG-17	Yes
6/21/66	MiG-17	923FR	Phan Thanh Trung	RF-8A	No
	MiG-17	923FR	Duong Truong Tan		
	MiG-17	923FR	Nguyen Van Bay		
	MiG-17	923FR	Phan Van Tuc		
6/21/66	MiG-17	923FR	Phan Thanh Trung	F-8E	Yes
	MiG-17	923FR	Duong Truong Tan		
	MiG-17	923FR	Nguyen Van Bay		
	MiG-17	923FR	Phan Van Tuc		
6/29/66	F-105D	388 <sup>th</sup> TFW	Fred Tracy	MiG-17	Yes
6/29/66	MiG-17	923FR	Tran Huyen	F-105D	No
	MiG-17	923FR	Vo Van Man		
	MiG-17	923FR	Nguyen Van Bay		
	MiG-17	923FR	Phan Van Tuc		
6/29/66	MiG-17	923FR	Tran Huyen	F-105D	No
	MiG-17	923FR	Vo Van Man		
	MiG-17	923FR	Nguyen Van Bay		
	MiG-17	923FR	Phan Van Tuc		
7/6/66	MiG-21	921FR	Tran Ngoc Xiu	F-105D	No
7/11/66	MiG-17	923FR?	Unknown	F-105D	Yes
7/11/66	MiG-21	921FR	Vu Ngoc Dinh	F-105D	Yes
	MiG-21	921FR	Dong Van Song	F-105D	Yes
7/13/66	F-4B	VF-161	William McGuigan/Robert Fowler	MiG-17	Yes
7/13/66	MiG-17	923FR	Phan Than Trung	Unknown	No
7/14/66	F-4C	35 <sup>th</sup> TFW	William Swedner/Duane Buttell, Jr.	MiG-21	Yes
7/14/66	F-4C	35 <sup>th</sup> TFW	Ronald Martin/Richard Kriepps	MiG-21	Yes
7/14/66	MiG-17	923FR	Ngo Duc Mai	F-8E	Yes
7/19/66	MiG-17	923FR	Nguyen Ba Dich	F-4	No
7/19/66	MiG-17	923FR	Vo Van Man	F-105D	Yes
7/19/66	MiG-17	923FR	Nguyen Bien	F-105D	No
7/29/66	MiG-17	923FR	Luu Huy Chao	RC-47D	Yes
8/16/66	F-105D	388 <sup>th</sup> TFW	Kenneth Blank	MiG-17	Yes
9/5/66	MiG-17	923FR	Unknown	F-8E	Yes

9/5/66	MiG-17	923FR	Unknown	F-8	No
9/16/66	F-4C	8 <sup>th</sup> TFW	Jerry Jameson/Douglas Rose	MiG-17	Yes
9/16/66	MiG-17	923FR	Nguyen Van Bay	F-4C	Yes
9/21/66	F-105D	388 <sup>th</sup> TFW	Karl Richter	MiG-17	Yes
9/21/66	F-105D	355 <sup>th</sup> TFW	Fred Wilson, Jr.	MiG-17	Yes
9/21/66	MiG-17	923FR	Unknown	F-4C	Yes
9/21/66	MiG-21	921FR	Unknown	F-105	No
10/5/66	MiG-21	921FR	Unknown	F-4C	Yes
10/9/66	F-8E	VF-162	Richard Bellinger	MiG-21	Yes
10/9/66	A-1H	VA-176	William Patton	MiG-17	Yes
10/9/66	MiG-21	921FR	Nguyen Van Minh	F-4B	No
10/9/66	MiG-21	921FR	Nguyen Van Minh	F-4B	No
11/5/66	F-4C	366 <sup>th</sup> TFW	James Tuck/John Rabeni, Jr.	MiG-21	Yes
11/5/66	F-4C	366 <sup>th</sup> TFW	Wilbur Latham, Jr./Klaus Klause	MiG-21	Yes
12/2/66	MiG-17	921FR	Unknown	F-105D	Yes
12/2/66	MiG-21	921FR	Unknown	F-4C	No
12/2/66	MiG-21	921FR	Unknown	F-4C	No
12/4/66	F-105D	388 <sup>th</sup> TFW	Roy Dickey	MiG-17	Yes
12/5/66	MiG-21	921FR	Unknown	F-105D	Yes
12/8/66	MiG-21	921FR	Unknown	F-105D	Yes
12/8/66	MiG-21	921FR	Unknown	F-105	No
12/14/66	MiG-21	921FR	Unknown	F-105D	Yes
12/14/66	MiG-21	921FR	Unknown	F-105	No
12/14/66	MiG-21	921FR	Unknown	F-105	No
12/20/66	F-4B	VF-114	Dennis Wisely/David Jordan	An-2	Yes
12/20/66	F-4B	VF-213	David McCrea/David Nichols	An-2	Yes

*Yearly Total*

VPAF	16
USAF	17
USN	9

*Total to Date*

VPAF	20
USAF	20
USN	13

**1967**

1 /2/67	F-4C	8 <sup>th</sup> TFW	Ralph Wetterhahn/Jerry Sharp	MiG-21	Yes
1 /2/67	F-4C	8 <sup>th</sup> TFW	Walter Radeker III/James Murray III	MiG-21	
					Yes
1 /2/67	F-4C	8 <sup>th</sup> TFW	Robin Olds/Charles Clifton	MiG-21	Yes
1 /2/67	F-4C	8 <sup>th</sup> TFW	Everett Raspberry, Jr./Robert Western	MiG-21	Yes
1 /2/67	F-4C	8 <sup>th</sup> TFW	Philip Combies/Lee Dutton	MiG-21	Yes
1 /2/67	F-4C	8 <sup>th</sup> TFW	John Stone/Clifton Dunnegan, Jr.	MiG-21	Yes
1 /2/67	F-4C	8 <sup>th</sup> TFW	Lawrence Glynn, Jr./Lawrence Cary	MiG-21	
					Yes
1/6/67	F-4C	8 <sup>th</sup> TFW	Richard Pascoe/Norman Wells	MiG-21	Yes
1/6/67	F-4C	8 <sup>th</sup> TFW	Thomas Hirsch/Roger Strasswimmer	MiG-21	Yes
2/5/67	MiG-17	921FR	Unknown	F-4	No
3/10/67	F-105D	355 <sup>th</sup> TFW	Max Brestel	MiG-17	Yes
3/10/67	F-105D	355 <sup>th</sup> TFW	Max Brestel	MiG-17	Yes
3/26/67	F-105D	355 <sup>th</sup> TFW	Robert Scott	MiG-17	Yes
3/26/67	MiG-17	921FR	Unknown	F-4C	No
4/19/67	F-105F	355 <sup>th</sup> TFW	Leo Thorsness/Harold Johnson	MiG-17	Yes

4/19/67	F-105D	355 <sup>th</sup> TFW	Frederick Tolman	MiG-17	Yes
4/19/67	F-105D	355 <sup>th</sup> TFW	Jack Hunt	MiG-17	Yes
4/19/67	F-105D	355 <sup>th</sup> TFW	William Eskew	MiG-17	Yes
4/19/67	MiG-17	921FR	Unknown	F-105F	Yes
4/19/67	MiG-17	921FR	Unknown	F-105	No
4/19/67	MiG-17	923FR	Doung Troung Tan	A-1E	Yes
	MiG-17	923FR	Nguyen Van Trung		
	MiG-17	923FR	Nguyen Van Tho		
4/19/67	MiG-17	923FR	Doung Troung Tan	A-1H	No
	MiG-17	923FR	Nguyen Van Trung		
	MiG-17	923FR	Nguyen Van Tho		
4/23/67	F-4C	366 <sup>th</sup> TFW	Robert Anderson/Fred Kjer	MiG-21	Yes
4/24/67	F-4B	VF-114	Charles Southwick/James Laing	MiG-17	Yes
4/24/67	F-4B	VF-114	Dennis Wisely/Gareth Anderson	MiG-17	Yes
4/24/67	MiG-17	923FR	Vo Van Man	F-4	No
	MiG-17	923FR	Nguyen Ba Dich		
	MiG-17	923FR	Nguyen Van Bay		
	MiG-17	923FR	Nguyen The Hon		
4/24/67	MiG-17	923FR	Vo Van Man	F-4C	No
	MiG-17	923FR	Nguyen Ba Dich		
	MiG-17	923FR	Nguyen Van Bay		
	MiG-17	923FR	Nguyen The Hon		
4/24/67	MiG-17	923FR	Mai Duc Toai	F-4B	No
	MiG-17	923FR	Le Hai		
	MiG-17	923FR	Luu Huy Chao		
	MiG-17	923FR	Hoang Van Ky		
4/25/67	MiG-17	923FR	Mai Duc Toai	F-105D	No
	MiG-17	923FR	Le Hai		
	MiG-17	923FR	Luu Huy Chao		
	MiG-17	923FR	Hoang Van Ky		
4/25/67	MiG-17	923FR	Nguyen Van Bay	A-4C	Yes
	MiG-17	923FR	Nguyen The Hon		
	MiG-17	923FR	Ha Bon		
	MiG-17	923FR	Nguyen Ba Dich		
4/25/67	MiG-17	923FR	Nguyen Van Bay	A-4E	No
	MiG-17	923FR	Nguyen The Hon		
	MiG-17	923FR	Ha Bon		
	MiG-17	923FR	Nguyen Ba Dich		
4/25/67	MiG-17	923FR	Nguyen Van Bay	F-8	Yes
	MiG-17	923FR	Nguyen The Hon		
	MiG-17	923FR	Ha Bon		
	MiG-17	923FR	Nguyen Ba Dich		
4/26/67	F-4C	366 <sup>th</sup> TFW	Rolland Moore, Jr./James Sears	MiG-21	Yes
4/28/67	F-105D	355 <sup>th</sup> TFW	Harry Higgins	MiG-17	Yes
4/28/67	F-105D	355 <sup>th</sup> TFW	Arthur Dennis	MiG-17	Yes
4/28/67	MiG-21	921FR	Unknown	F-105D	Yes
4/30/67	MiG-21	921FR	Nguyen Ngoc Do	F-105D	Yes
4/30/67	MiG-21	921FR	Nguyen Van Coc	F-105F	Yes
4/30/67	MiG-21	921FR	Le Trong Huyen	F-105D	Yes
4/30/67	MiG-21	921FR	Vu Ngoc Dinh	F-105D	No
4/30/67	F-105D	355 <sup>th</sup> TFW	Thomas Lesan	MiG-17	Yes
5/1/67	A-4C	VA-76	Theodore Swartz	MiG-17	Yes

5/1/67	F-8E	VF-211	Marshall Wright	MiG-17	Yes
5/1/67	F-4C	366 <sup>th</sup> TFW	Robert Dilger/Mack Thies	MiG-17	Yes
5/4/67	F-4C	8 <sup>th</sup> TFW	Robin Olds/William Lavever	MiG-17	Yes
5/12/67	F-105D	355 <sup>th</sup> TFW	Jacques Suzanne	MiG-17	Yes
5/12/67	MiG-17	923FR	Cao Thanh Tinh	F-4C	Yes
	MiG-17	923FR	Le Hai		
	MiG-17	923FR	Ngo Duc Mai		
	MiG-17	923FR	Hoang Van Ky		
5/12/67	MiG-17	923FR	Cao Thanh Tinh	F-4C	No
	MiG-17	923FR	Le Hai		
	MiG-17	923FR	Ngo Duc Mai		
	MiG-17	923FR	Hoang Van Ky		
5/12/67	MiG-17	923FR	Cao Thanh Tinh	F-4C	No
	MiG-17	923FR	Le Hai		
	MiG-17	923FR	Ngo Duc Mai		
	MiG-17	923FR	Hoang Van Ky		
5/12/67	MiG-17	923FR	Duong Trung Tan	F-105D	Yes
	MiG-17	923FR	Nguyen Van Tho		
5/12/67	MiG-17	921FR	Le Trong Huyen	F-105F	No
	MiG-17	921FR	Dong Van Song		
5/13/67	F-105D	355 <sup>th</sup> TFW	Philip Gast	MiG-17	Yes
5/13/67	F-105D	355 <sup>th</sup> TFW	Charles Couch	MiG-17	Yes
5/13/67	F-105D	355 <sup>th</sup> TFW	Robert Rilling	MiG-17	Yes
5/13/67	F-105D	355 <sup>th</sup> TFW	Carl Osborne	MiG-17	Yes
5/13/67	F-4C	8 <sup>th</sup> TFW	William Kirk/Stephen Wayne	MiG-17	Yes
5/13/67	F-4C	8 <sup>th</sup> TFW	Fred Haeffner/Michael Bever	MiG-17	Yes
5/13/67	F-105D	388 <sup>th</sup> TFW	Maurice Seaver, Jr.	MiG-17	Yes
5/14/67	F-4C	366 <sup>th</sup> TFW	James Hargrove, Jr./Stephen DeMuth	MiG-17	Yes
5/14/67	F-4C	366 <sup>th</sup> TFW	James Craig, Jr./James Talley	MiG-17	Yes
5/14/67	F-4C	366 <sup>th</sup> TFW	Samuel Bakke/Robert Lambert	MiG-17	Yes
5/19/67	F-8E	VF-211	Paul Speer	MiG-17	Yes
5/19/67	F-8E	VF-211	Joseph Shea	MiG-17	Yes
5/19/67	F-8C	VF-24	Robert Lee	MiG-17	Yes
5/19/67	F-8C	VF-24	Philip Wood	MiG-17	Yes
5/19/67	MiG-17	923FR	Nguyen Huu Diet	F-4B	Yes
5/19/67	MiG-17	923FR	Phan Thanh Tai	F-4B	No
5/20/67	F-4C	366 <sup>th</sup> TFW	Robert Titus/Milan Zimer	MiG-21	Yes
5/20/67	F-4C	366 <sup>th</sup> TFW	Robert Janca/William Roberts, Jr.	MiG-21	Yes
5/20/67	F-4C	8 <sup>th</sup> TFW	John Pardo/Stephen Wayne	MiG-17	Yes
5/20/67	F-4C	8 <sup>th</sup> TFW	Robin Olds/Stephen Croker	MiG-17	Yes
5/20/67	F-4C	8 <sup>th</sup> TFW	Robin Olds/Stephen Croker	MiG-17	Yes
5/20/67	F-4C	8 <sup>th</sup> TFW	Philip Combies/Daniel Lafferty	MiG-17	Yes
5/20/67	MiG-17	923FR	Dang Ngoc Nu	F-4C	Yes
5/21/67	F-8C	VF-24	Marion Isaacks	MiG-17	Yes
5/21/67	F-8C	VF-24	Philip Dempewolf	MiG-17	No
5/21/67	F-8C	VF-24	Robert Kirkwood	MiG-17	Yes
5/21/67	F-8E	VF-211	Ray Hubbard	MiG-17	Yes
5/22/67	F-4C	366 <sup>th</sup> TFW	Robert Titus/Milan Zimer	MiG-21	Yes
5/22/67	F-4C	366 <sup>th</sup> TFW	Robert Titus/Milan Zimer	MiG-21	Yes
6/3/67	F-105D	388 <sup>th</sup> TFW	Larry Wiggins	MiG-17	Yes
6/3/67	F-105D	388 <sup>th</sup> TFW	Ralph Kuster, Jr.	MiG-17	Yes
6/5/67	F-4D	8 <sup>th</sup> TFW	Everett Raspberry, Jr./Francis Gulick	MiG-17	Yes

6/5/67	F-4C	366 <sup>th</sup> TFW	Durwood Priestster/John Parkhurst	MiG-17	Yes
6/5/67	F-4C	8 <sup>th</sup> TFW	Richard Pascoe/Norman Wells	MiG-17	Yes
7/11/67	MiG-21	921FR	Le Trong Huyen	A-4	No
	MiG-21	921FR	Dong Van Song		
7/17/67	MiG-21	921FR	Nguyen Nhat Chieu	F-8	No
7/20/67	MiG-21	921FR	Nguyen Ngoc Do	F-4	No
	MiG-21	921FR	Pham Thanh Ngan		
7/26/67	MiG-21	921FR	Unknown	RF-4C	No
8/10/67	F-4B	VF-142	Guy Freeborn/Robert Elliot	MiG-21	Yes
8/10/67	F-4B	VF-142	Robert Davis/Gayle Elie	MiG-21	Yes
8/10/67	MiG-21	921FR	Unknown	RF-4C	No
8/23/67	F-105D	388 <sup>th</sup> TFW	David Waldrop III	MiG-17	Yes
8/23/67	F-105D	388 <sup>th</sup> TFW	David Waldrop III	MiG-17	Yes
8/23/67	MiG-17	923FR	Cao Thanh Tinh	F-105	No
8/23/67	MiG-17	923FR	Cao Thanh Tinh	F-105	No
8/23/67	MiG-17	923FR	Nguyen Van Tho	F-105	No
	MiG-17	923FR	Nguyen Hong Diep	F-105	No
8/23/67	MiG-21	921FR	Nguyen Nhat Chieu	F-4D	Yes
8/23/67	MiG-21	921FR	Nguyen Van Coc	F-4D	Yes
9/16/67	MiG-21	921FR	Nguyen Ngoc Do	RF-101C	Yes
9/16/67	MiG-21	921FR	Pham Than Ngan	RF-101C	No
9/17/67	MiG-21	921FR	Unknown	RF-4C	No
10/3/67	MiG-21	921FR	Nguyen Van Coc	F-4D	Yes
10/7/67	MiG-21	921FR	Nguyen Van Coc	F-105F	Yes
10/9/67	MiG-21	921FR	Nguyen Van Coc	F-105D	Yes
10/18/67	F-105D	355 <sup>th</sup> TFW	Donald Russell	MiG-17	Yes
10/24/67	F-4D	8 <sup>th</sup> TFW	William Kirk/Theodore Bongartz	MiG-21	Yes
10/25/67	MiG-17	923FR	Nguyen Huu Tao	F-105D	No
10/26/67	F-4D	8 <sup>th</sup> TFW	John Logeman, Jr./Frederick McCoy II	MiG-17	Yes
10/26/67	F-4D	8 <sup>th</sup> TFW	William Gordon III/James Monsees	MiG-17	Yes
10/26/67	F-4D	8 <sup>th</sup> TFW	Larry Cobb/Alan Lavoy	MiG-17	Yes
10/26/67	F-4B	VF-143	Robert Hickey/Jeremy Morris	MiG-21	Yes
10/27/67	F-105D	355 <sup>th</sup> TFW	Gene Basel	MiG-17	Yes
10/30/67	F-4B	VF-142	Eugene Lund/James Borst	MiG-17	Yes
11/6/67	F-4D	8 <sup>th</sup> TFW	Darrell Simmonds/George McKinney, Jr.	MiG-17	Yes
11/6/67	F-4D	8 <sup>th</sup> TFW	Darrell Simmonds/George McKinney, Jr.	MiG-17	Yes
11/8/67	MiG-21	921FR	Nguyen Hong Nhi	F-4D	Yes
11/8/67	MiG-21	921FR	Nguyen Dang Kinh	F-4	No
11/18/67	MiG-21	921FR	Nguyen Van Coc	F-105F	Yes
11/18/67	MiG-21	921FR	Unknown	F-105D	Yes
11/19/67	MiG-21	921FR	Le Hai	F-4B	Yes
11/19/67	MiG-21	921FR	Nguyen Dinh Phuc	F-4B	Yes
11/19/67	MiG-17	923FR	Nguyen Phi Hung	F-4B	No
11/19/67	MiG-21	921FR	Vu Ngoc Dinh	EB-66C	No
	MiG-21	921FR	Nguyen Dang Kinh		
11/20/67	MiG-21	921FR	Nguyen Van Coc	F-105D	Yes
12/12/67	MiG-21	921FR	Unknown	F-105	No
12/14/67	F-8E	VF-162	Richard Wyman	MiG-17	Yes
12/14/67	MiG-17	923FR?	Unknown	F-8	No
12/16/67	MiG-21	921FR	Unknown	F-4D	Yes
12/17/67	F-4D	432 <sup>nd</sup> TRW	Doyle Baker (USMC)/John Ryan, Jr.	MiG-17	

12/17/67MiG-17	923FR?	Unknown	F-4D	Yes
12/17/67MiG-17	923FR?	Unknown	F-4C	No
12/17/67MiG-17	921FR	Vu Ngoc Dinh	F-105D	Yes
12/17/67MiG-17	921FR	Vu Ngoc Dinh	F-105	No
12/17/67MiG-17	921FR	Nguyen Hong Nhi	F-105	No
12/19/67F-4D	8 <sup>th</sup> TFW	Joseph Moore/George McKinney, Jr.	MiG-17	Yes
F-105F	355 <sup>th</sup> TFW	William Dalton/James Graham		
12/19/67F-105F	355 <sup>th</sup> TFW	Philip Drew/William Wheeler	MiG-17	Yes
12/19/67MiG-21	921FR	Nguyen Van Coc	F-105	No

*Yearly Total*

VPAF	28
USAF	60
USN	17

*Total to Date*

VPAF	48
USAF	80
USN	30

**1968**

1/3/68 F-4D	8 <sup>th</sup> TFW	Clayton Squier/Michael Muldoon	MiG-17	No
1/3/68 F-4D	8 <sup>th</sup> TFW	Bernard Bogoslofski/Richard Huskey	MiG-17	Yes
1/3/68 MiG-17	923FR	Bui Van Suu	F-4	No
1/3/68 MiG-21	921FR	Nguyen Dang Kinh	F-105D	Yes
1/3/68 MiG-21	921FR	Bui Duc Nhu	F-105	No
1/3/68 MiG-21	921FR	Ha Van Chuc	F-105	No
1/5/68 MiG-17	923FR?	Unknown	F-105F	Yes
1/14/68 MiG-21	921FR	Nguyen Dang Kinh	EB-66C	Yes
MiG-21	921FR	Dong Van Song		
1/14/68 MiG-21	921FR	Unknown	F-105D	Yes
1/18/68 F-4D	8 <sup>th</sup> TFW	Kenneth Simonet/Wayne Smith	MiG-17	Yes
1/18/68 MiG-17	923FR	Unknown	F-4D	Yes
1/18/68 MiG-17	923FR	Unknown	F-4D	Yes
2/3/68 MiG-21	921FR	Nguyen Van Coc	F-102A	Yes
2/4/68 MiG-21	921FR	Unknown	F-105D	Yes
2/5/68 F-4D	432 <sup>nd</sup> TRW	Robert Hill/Bruce Huneke	MiG-21	Yes
2/6/68 F-4D	8 <sup>th</sup> TFW	Robert Boles/Robert Bautista	MiG-21	Yes
2/12/68 F-4D	8 <sup>th</sup> TFW	Alfred Lang, Jr./Randy Moss	MiG-21	Yes
2/14/68 F-4D	8 <sup>th</sup> TFW	Rex Howerton/Ted Voigt II	MiG-17	Yes
2/14/68 F-4D	8 <sup>th</sup> TFW	David Williams, Jr./James Feighny, Jr.	MiG-17	Yes
2/23/68 MiG-21	921FR	Unknown	F-4D	Yes
3/3/68 MiG-21	921FR	Nguyen Dang Kinh	EB-66C	No
MiG-21	921FR	Nguyen Duc Thuan		
5/7/68 MiG-21	921FR	Nguyen Van Coc	F-4B	Yes
5/9/68 F-4B	VF-96	John Heffernan (USAF)/Frank Schumacher	MiG-21	No
6/14/68 MiG-17	923FR	Le Hai	F-4	No
6/14/68 MiG-17	923FR	Luu Huy Chao	F-4	No
6/16/68 MiG-21	921FR	Dinh Ton	F-4J	Yes
6/19/68 MiG-17	923FR	Le Hai	F-8	No
6/26/68 F-8H	VF-51	Lowell Meyers	MiG-21	Yes
7/9/68 F-8E	VF-191	John Nichols III	MiG-17	Yes
7/10/68 F-4J	VF-33	Roy Cash, Jr./Joseph Kain, Jr.	MiG-21	Yes
7/29/68 F-8E	VF-53	Guy Cane	MiG-17	Yes
8/1/68 F-8H	VF-51	Norman McCoy	MiG-21	Yes
8/1/68 MiG-21	921FR	Nguyen Hong Nhi	F-8	No

8/19/68 MiG-21	921FR	Unknown	F-8C	No
8/19/68 F-8C	VF-111	Anthony Nargi	MiG-21	Yes
10/26/68 MiG-21	921FR	Unknown	F-4	No
<i>Yearly Total</i>			<i>Total to Date</i>	
VPAF	11		VPAF	59
USAF	7		USAF	87
USN	6		USN	36
<b>1970</b>				
1/18/70 MiG-21	921FR	Phan Dinh Tuan	F-4	No
1/28/70 MiG-21	921FR	Vu Ngoc Dinh	HH-53B	Yes
3/28/70 F-4J	VF-142	Jerome Beaulier/Steven Barkley	MiG-21	Yes
<i>Yearly Total</i>			<i>Total to Date</i>	
VPAF	1		VPAF	60
USAF	0		USAF	87
USN	1		USN	37
<b>1971</b>				
12/18/71 MiG-21	921FR	Le Thanh Dao	F-4D	Yes
12/18/71 MiG-21	921FR	Vo Si Giap	F-4D	Yes
<i>Yearly Total</i>			<i>Total to Date</i>	
VPAF	2		VPAF	62
USAF	0		USAF	87
USN	0		USN	37
<b>1972</b>				
1/19/72 F-4J	VF-96	Randall Cunningham/William Driscoll	MiG-21	Yes
2/21/72 F-4D	432 <sup>nd</sup> TRW	Robert Lodge/Roger Locher	MiG-21	Yes
3/1/72 F-4D	432 <sup>nd</sup> TRW	Joseph Kittinger, Jr./Leigh Hodgdon	MiG-21	Yes
3/6/72 F-4B	VF-111	Garry Weigand/William Frederickson	MiG-17	Yes
3/30/72 F-4D	432 <sup>nd</sup> TRW	Frederick Olmsted, Jr./Gerald Volloy	MiG-21	Yes
4/16/72 F-4D	432 <sup>nd</sup> TRW	Frederick Olmsted, Jr./Stuart Maas	MiG-21	Yes
4/16/72 F-4D	432 <sup>nd</sup> TRW	Edward Cherry/Jeffrey Feinstein	MiG-21	Yes
4/16/72 F-4D	432 <sup>nd</sup> TRW	James Null/Michael Vahue	MiG-21	Yes
4/27/72 MiG-21	921FR	Hoang Quoc Dung	F-4B	Yes
5/6/72 F-4B	VF-51	Jerry Houston/Kevin Moore	MiG-17	Yes
5/6/72 F-4J	VF-114	Robert Hughes/Adolph Cruz	MiG-21	Yes
5/6/72 F-4J	VF-114	Kenneth Pettigrew/Michael McCabe	MiG-21	Yes
5/8/72 F-4D	432 <sup>nd</sup> TRW	Barton Crews/Keith Jones, Jr.	MiG-19	No
5/8/72 F-4D	432 <sup>nd</sup> TRW	Robert Lodge/Roger Locher	MiG-21	Yes
5/8/72 F-4J	VF-96	Randall Cunningham/William Driscoll	MiG-17	Yes
5/8/72 MiG-19	925FR	Nguyen Ngoc Tiep	F-4	No
5/8/72 MiG-19	925FR	Nguyen Hong Son	F-4	No
5/10/72 F-4D	432 <sup>nd</sup> TRW	Robert Lodge/Roger Locher	MiG-21	Yes
5/10/72 F-4D	432 <sup>nd</sup> TRW	John Markle/Stephen Eaves	MiG-21	Yes
5/10/72 F-4D	432 <sup>nd</sup> TRW	Richard Ritchie/Charles deBellevue	MiG-21	Yes
5/10/72 F-4J	VF-92	Curt Dose/James McDevitt	MiG-21	Yes
5/10/72 F-4J	VF-96	Michael Connelly/Thomas Blonski	MiG-17	Yes
5/10/72 F-4J	VF-96	Michael Connelly/Thomas Blonski	MiG-17	Yes



5/10/72 F-4J	VF-51	Kenneth Cameron/Roy Morris, Jr.	MiG-17	Yes
5/10/72 F-4J	VF-96	Steven Shoemaker/Keith Crenshaw	MiG-17	Yes
5/10/72 F-4J	VF-96	Randall Cunningham/William Driscoll	MiG-17	Yes
5/10/72 F-4J	VF-96	Randall Cunningham/William Driscoll	MiG-17	Yes
5/10/72 F-4J	VF-96	Randall Cunningham/William Driscoll	MiG-17	Yes
5/10/72 MiG-19	925FR	Pham Hung Son	F-4E	Yes
5/10/72 MiG-19	925FR	Nguyen Manh Tung	F-4D	Yes
5/10/72 MiG-21	921FR	Dang Ngoc Ngu	F-4	No
5/10/72 MiG-21	921FR	Unknown	F-4	No
5/10/72 MiG-21	921FR	Le Thanh Dao	F-4J	No
5/10/72 MiG-21	921FR	Vu Duc Hop	F-4J	No
5/11/72 F-4D	432 <sup>nd</sup> TRW	Stephen Nichols/James Bell	MiG-21	Yes
5/11/72 MiG-21	927FR	Ngo Van Phu	F-4D	Yes
5/11/72 MiG-21	927FR	Ngo Duy Thu	F-105G	Yes
5/12/72 F-4D	432 <sup>nd</sup> TRW	Wayne Frye/James Cooney	MiG-21	Yes
5/18/72 F-4B	VF-161	Henry Bartholomay/Oran Brown	MiG-19	Yes
5/18/72 F-4B	VF-161	Patrick Arwood/James Bell	MiG-19	Yes
5/18/72 MiG-21	927FR	Nguyen Hong Nhi	F-4	No
5/18/72 MiG-19	925FR	Unknown	F-4D	Yes
5/18/72 MiG-17	923FR	Unknown	F-4	No
5/20/72 MiG-21	921FR	Do Van Lanh	F-4D	Yes
5/23/72 F-4E	366 <sup>th</sup> TFW	Lyle Beckers/John Huwe	MiG-19	Yes
5/23/72 F-4E	366 <sup>th</sup> TFW	James Beatty, Jr./James Sumner	MiG-21	Yes
5/23/72 F-4B	VF-161	Ronald McKeown/John Enschede	MiG-17	Yes
5/23/72 F-4B	VF-161	Ronald McKeown/John Enschede	MiG-17	Yes
5/23/72 MiG-21	921FR	Unknown	F-4D	No
5/23/72 MiG-21	921FR	Nguyen Duc Soat	A-7B	Yes
5/23/72 MiG-19	925FR	Pham Hung Son	F-4	No
5/23/72 MiG-19	925FR	Nguyen Hung Son	F-4	No
5/31/72 F-4E	432 <sup>nd</sup> TRW	Bruce Leonard, Jr./Jeffrey Feinstein	MiG-21	Yes
5/31/72 F-4D	432 <sup>nd</sup> TRW	Richard Ritchie/Lawrence Pettit	MiG-21	Yes
6/1/72 MiG-21	921FR	Pham Phu Thai	F-4E	Yes
6/2/72 F-4E	432 <sup>nd</sup> TRW	Philip Handley/John Smallwood	MiG-19	Yes
6/11/72 F-4B	VF-51	Foster Teague/Ralph Howell	MiG-17	Yes
6/11/72 F-4B	VF-51	Winston Copeland/Donald Bouchoux	MiG-17	Yes
6/13/72 MiG-21	921FR	Pham Phu Thai	F-4E	Yes
6/13/72 MiG-21	921FR	Do Van Lanh	F-4	No
6/21/72 F-4E	388 <sup>th</sup> TFW	Von Christiansen/Kaye Harden	MiG-21	Yes
6/21/72 F-4J	VF-31	Samuel Flynn/William John	MiG-21	Yes
6/21/72 MiG-21	921FR	Do Van Lanh	F-4E	Yes
6/24/72 MiG-21	927FR	Nguyen Duc Soat	F-4E	Yes
6/24/72 MiG-21	927FR	Nguyen Van Nghia	F-4D	Yes
6/27/72 MiG-21	927FR	Ngo Duy Thu	F-4	No
6/27/72 MiG-21	921FR	Nguyen Duc Nhu	F-4	No
6/27/72 MiG-21	927FR	Nguyen Duc Soat	F-4E	Yes
6/27/72 MiG-21	927FR	Pham Phu Thai	F-4E	Yes
6/27/72 MiG-21	921FR	Bui Thanh Liem	F-4E	Yes
7/5/72 MiG-21	927FR	Nguyen Tien Sam	F-4E	Yes
7/5/72 MiG-21	927FR	Ha Vin Thanh	F-4E	Yes
7/8/72 F-4E	366 <sup>th</sup> TFW	Richard Hardy/Paul Lewinski	MiG-21	Yes
7/8/72 F-4E	432 <sup>nd</sup> TRW	Richard Ritchie/Charles deBellevue	MiG-21	Yes
7/8/72 F-4E	432 <sup>nd</sup> TRW	Richard Ritchie/Charles deBellevue	MiG-21	Yes

7/8/72	MiG-21	921FR	Dang Ngoc Ngu	F-4E	Yes
7/10/72	MiG-17	923FR	Han Vinh Tuong	F-4J	Yes
7/18/72	F-4D	432 <sup>nd</sup> TRW	Carl Bailly/Jeffrey Feinstein	MiG-21	Yes
7/24/72	MiG-21	927FR	Nguyen Tien Sam	F-4E	Yes
7/24/72	MiG-21	927FR	Ha Vinh Thanh	F-4	No
7/24/72	MiG-21	927FR	Le Thanh Dao	F-4	No
7/24/72	MiG-21	927FR	Truong Ton	F-4	No
7/29/72	F-4D	432 <sup>nd</sup> TRW	Carl Bailly/Jeffrey Feinstein	MiG-21	Yes
7/29/72	F-4E	432 <sup>nd</sup> TRW	Gene Taft/Stanley Imaye	MiG-21	Yes
7/29/72	MiG-21	927FR	Nguyen Tien Sam	F-4E	Yes
7/30/72	MiG-21	927FR	Nguyen Duc Soat	F-4E	Yes
8/8/72	F-4J	VF-103	Robert Tucker, Jr./Stanley Edens	MiG-21	Yes
8/12/72	F-4E	432 <sup>nd</sup> TRW	Lawrence Richard (USMC)/ Michael Ettel (USN)	MiG-21	Yes**
8/15/72	F-4E	8 <sup>th</sup> TFW	Fred Sheffler/Mark Massen	MiG-21	Yes
8/19/72	F-4E	366 <sup>th</sup> TFW	Sammy White/Frank Bettine	MiG-21	Yes
8/26/72	MiG-21	927FR	Nguyen Duc Soat	F-4J	Yes
8/28/72	F-4D	432 <sup>nd</sup> TRW	Richard Ritchie/Charles deBellevue	MiG-21	Yes
9/2/72	F-4E	388 <sup>th</sup> TFW	Jon Lucas/Douglas Malloy	MiG-19	Yes
9/9/72	F-4D	432 <sup>nd</sup> TRW	Calvin Tibbett/William Hargrove	MiG-21	Yes
9/9/72	F-4D	432 <sup>nd</sup> TRW	John Madden, Jr./Charles deBellevue	MiG-19	Yes
9/9/72	F-4D	432 <sup>nd</sup> TRW	John Madden, Jr./Charles deBellevue	MiG-19	Yes
9/9/72	MiG-21	921FR	Do Van Lanh	F-4E	No
9/11/72	F-4J	VMFA-333	Lee Lasseter/John Cummings	MiG-21	Yes
9/11/72	MiG-21	927FR	Le Thanh Dao	F-4E	Yes
9/12/72	F-4E	388 <sup>th</sup> TFW	Lyle Beckers/Thomas Griffin	MiG-21	Yes
9/12/72	F-4E	388 <sup>th</sup> TFW	Gary Retterbush/Daniel Autrey	MiG-21	Yes
9/12/72	F-4E	388 <sup>th</sup> TFW	Michael Mahaffey/George Shields	Mig-21	Yes
9/12/72	MiG-21	927FR	Nguyen Tien Sam	F-4E	Yes
9/16/72	F-4E	432 <sup>nd</sup> TRW	Calvin Tibbett/William Hargrove	MiG-21	Yes
10/5/72	F-4E	388 <sup>th</sup> TFW	Richard Coe/Omri Webb III	MiG-21	Yes
10/5/72	MiG-21	927FR	Nguyen Tien Sam	F-4D	Yes
10/6/72	F-4E	388 <sup>th</sup> TFW	Gordon Clouser/Cecil Brunson	MiG-19	Yes
	F-4E	388 <sup>th</sup> TFW	Charles Barton/George Watson		
10/6/72	MiG-21	927FR	Nguyen Van Nghia	F-4E	Yes
10/8/72	F-4E	388 <sup>th</sup> TFW	Gary Retterbush/Robert Jasperson	MiG-21	Yes
10/12/72	F-4D	432 <sup>nd</sup> TRW	John Madden, Jr./Lawrence Pettit	MiG-21	Yes
10/12/72	MiG-21	927FR	Nguyen Duc Soat	F-4E	Yes
10/13/72	F-4D	432 <sup>nd</sup> TRW	Curtis Westphal/Jeffrey Feinstein	MiG-21	Yes
10/15/72	F-4E	388 <sup>th</sup> TFW	Robert Holtz/William Diehl	MiG-21	Yes
10/15/72	F-4E	432 <sup>nd</sup> TRW	Gary Rubus/James Hendrickson	MiG-21	Yes
10/15/72	F-4D	432 <sup>nd</sup> TRW	Ivy McCoy, Jr./Frederick Brown	MiG-21	Yes
12/18/72	B-52D	307 <sup>th</sup> SW	Samuel Turner	MiG-21	Yes
12/22/72	F-4D	432 <sup>nd</sup> TRW	Gary Sholders/Eldon Binkley	MiG-21	Yes
12/22/72	F-4D	432 <sup>nd</sup> TRW	James Brunson/Ralph Pickett	MiG-21	Yes
12/23/72	MiG-21	921FR	Unknown	F-4	No
12/23/72	MiG-21	921FR	Unknown	F-4	No
12/23/72	MiG-21	921FR	Unknown	F-4	No
12/24/72	B-52D	307 <sup>th</sup> SW	Albert Moore	MiG-21	Yes
12/27/72	MiG-21	921FR	Pham Tuan	B-52D	Yes***
12/27/72	MiG-21	921FR	Tran Viet	F-4E	Yes
12/28/72	F-4D	432 <sup>nd</sup> TRW	Harry McKee, Jr./John Dubler	MiG-21	Yes

12/28/72F-4J	VF-142	Scott Davis/Geoffrey Ulrich	MiG-21	Yes
12/28/72MiG-21	921FR	Tran Viet	F-4E	Yes
12/28/72MiG-21	921FR	Tran Viet	RA-5C	Yes
12/28/72MiG-21	921FR	Vu Xuan Thieu	B-52D	No

*Yearly Total:*

VPAF	33
USAF	49
USN	24

*Total to Date:*

VPAF	95
USAF	136
USN	61

**1973**

1/8/73 F-4D	432 <sup>nd</sup> TRW	Paul Howman/Lawrence Kullman	MiG-21	Yes
1/12/73 F-4B	VF-161	Victor Kovaleski/James Wise	MiG-17	Yes

*Yearly Total:*

VPAF	0
USAF	1
USN	1

*Total, Vietnam War:*

VPAF	95
USAF	137
USN	62
Total, United States:	199

*Notes:*

\* May have been Chinese (PLAAF).

\*\* Included in USAF total

\*\*\* Probable only

*Sources:*

Toperczer, *Air War, ?-?, MiG-17 and MiG-19 Units, ?-?, MiG-21 Units, ?-?*

Drendel, *?,?*

***Appendix II:***  
***Air-to-Air Victories By Personnel, 1964-1973***

United States Air Force

deBellevue, Charles	6
Feinstein, Jeff	5
Ritchie, Richard	5
Olds, Robin	4
Locher, Roger	3
Lodge, Robert	3
Titus, Robert	3
Zimer, Milan	3
McKinney, George Jr.	2 .5
Baily, Carl	2
Beckers, Lyle	2
Brestel, Max	2
Combies, Philip	2
Crocker, Steven	2
Hargrove, William	2
Kirk, William	2
Madden, John Jr.	2
Olmsted, Frederick Jr.	2
Pascoe, Richard	2
Pettit, Larry	2
Raspberry, Everett Jr.	2
Retterbush, Gary	2
Simmonds, Darrell	2
Tibbett, Calvin	2
Waldrop, David III	2
Wayne, Stephen	2
Wells, Norman	2
Anderson, Robert	1
Anderson, Ronald	1
Autrey, Daniel	1
Bakke, Samuel	1
Basel, Gene	1
Bautista, Robert	1
Beakley, Robert	1
Beatty, James Jr.	1
Bell, James	1
Bettine, Frank	1
Bever, Michael	1
Binkley, Eldon	1
Blake, Robert	1
Blank, Kenneth	1
Bogoslofski, Bernard	1
Boles, Robert	1
Bongartz, Thomas	1
Brown, Fred	1
Brunson, James	1

Buttell, Duane Jr.	1
Cameron, Max	1
Cary, Lawrence	1
Cherry, Edward	1
Christiansen, Von	1
Clark, Arthur	1
Clifton, Charles	1
Cobb, Larry	1
Coe, Richard	1
Cooney, James	1
Couch, Charles	1
Craig, James Jr.	1
DeMuth, Stephen	1
Dennis, Arthur	1
Dickey, Roy	1
Diehl, William	1
Dilger, Robert	1
Dowell, William	1
Drew, Philip	1
Dubler, John	1
Dudley, Wilbur	1
Dunnegan, Clifton Jr.	1
Dutton, Lee	1
Eaves, Stephen	1
Eskew, William	1
Evans, Robert	1
Feighny, James Jr.	1
Frye, Wayne	1
Gast, Philip	1
George, S.W.	1
Gilmore, Paul	1
Glynn, Lawrence Jr.	1
Goldberg, Lawrence	1
Gordon, William III	1
Gossard, Halbert	1
Griffin, Thomas	1
Gulick, Francis	1
Haeffner, Fred	1
Handley, Philip	1
Harden, Kaye	1
Hardy, Richard	1
Hargrave, Gerald	1
Hargrove, James Jr.	1
Heffernan, John	1
Hendrickson, James	1
Higgins, Harry	1
Hill, Robert	1
Hirsch, Thomas	1
Hodgdon, Leigh	1
Holcombe, Kenneth	1
Holtz, Robert	1
Howerton, Rex	1

Howman, Paul	1
Hume, John	1
Huneke, Bruce	1
Hunt, Jack	1
Huskey, Richard	1
Imaye, Stanley	1
Jameson, Jerry	1
Janca, Robert	1
Jasperson, Robert	1
Johnson, Harold	1
Keith, Larry	1
Kjer, Fred	1
Kilgus, Donald	1
Kittinger, Joseph Jr.	1
Klause, Klaus	1
Krieps, Richard	1
Kringelis, Imants	1
Kullman, Lawrence	1
Kuster, Ralph Jr.	1
Lafever, William	1
Lafferty, Daniel	1
Lang, Alfred Jr.	1
Latham, Wilbur Jr.	1
Lambert, Robert	1
Lavoy, Alan	1
Leonard, Bruce Jr.	1
Lesan, Thomas	1
Lewinski, Paul	1
Logeman, John Jr.	1
Lucas, Jon	1
Maas, Stuart	1
Mahaffey, Michael	1
Malloy, Douglas	1
Markle, John	1
Massen, Mark	1
Martin, Ronald	1
McCoy, Fred II	1
McCoy, Ivy Jr.	1
McKee, Harry Jr.	1
Monsees, James	1
Moore, Albert	1
Moore, Rolland Jr.	1
Moss, Randy	1
Murray, James III	1
Nichols, Stephen	1
Null, James	1
Osborne, Carl	1
Pardo, John	1
Parkhurst, John	1
Pickett, Ralph	1
Priester, Durwood	1
Rabeni, John Jr.	1

Radeker, Walter III	1
Richter, Karl	1
Rilling, Robert	1
Roberts, Thomas	1
Roberts, William Jr.	1
Rose, Douglas	1
Rubus, Gary	1
Russell, Donald	1
Ryan, John Jr.	1
Scott, Robert	1
Sears, James	1
Seaver, Maurice Jr.	1
Sharp, Jerry	1
Sheffler, Fred	1
Shields, George	1
Sholders, Gary	1
Simonet, Kenneth	1
Smallwood, John	1
Smith, Wayne	1
Smith, William	1
Strasswimmer, Roger	1
Stone, John	1
Sumner, James	1
Suzanne, Jacques	1
Swedner, William	1
Taft, Gene	1
Talley, James	1
Thies, Mack	1
Thorsness, Leo	1
Tolman, Fred	1
Tracy, Fred	1
Tuck, James	1
Turner, Samuel	1
Vahue, Michael	1
Voight, Ted II	1
Volloy, Gerald	1
Webb, Omri III	1
Western, Robert	1
Westphal, Curtis	1
Wetterhahn, Ralph	1
Wheeler, William	1
White, Sammy	1
Wiggins, Larry	1
Williams, David Jr.	1
Wilson, Fred Jr.	0.5
Barton, Charles	0.5
Brunson, Cecil	0.5
Clouser, Gordon	0.5
Dalton, William	0.5
Graham, James	0.5
Moore, Joseph	0.5
Watson, George	0.5

United States Navy/Marine Corps

Cunningham, Randall	5
Driscoll, William	5
Batson, Jack	2
Blonski, Thomas	2
Connelly, Michael	2
Doremus, Robert	2
Ensch, John	2
Marr, Harold	2
McKeown, Ronald	2
Wisely, Dennis	2
Anderson, Gareth	1
Arwood, Patrick	1
Baker, Doyle*	1
Barkley, Steven	1
Bartholomay, Henry	1
Beaulier, James	1
Bell, James	1
Bellinger, Richard	1
Borst, James	1
Bouchoux, Donald	1
Brown, Oran	1
Cameron, Ken	1
Cane, Guy	1
Cash, Roy Jr.	1
Chancy, Eugene	1
Copeland, Winston	1
Crenshaw, Keith	1
Cruz, Adolph	1
Cummings, John	1
Davis, Robert	1
Davis, Scott	1
Dose, Curt	1
Edens, Stanley	1
Elie, Gayle	1
Elliot, Robert	1
Ettel, Michael	1
Flynn, Samuel	1
Fowler, Robert	1
Frederickson, William	1
Freeborn, Guy	1
Hickey, Robert	1
Howell, Ralph	1
Houston, Jerry	1
Hubbard, Ray	1
Hughes, Robert	1
John, William	1
Jordan, David	1
Isaacks, Marion	1
Kain, Joseph Jr.	1



Kirkwood, Robert	1
Kovaleski, Victor	1
Laing, James	1
Lassester, Lee*	1
Lee, Robert	1
Lund, Eugene	1
McCabe, Michael	1
McCoy, Norman	1
McCrea, David	1
McDevitt, James	1
McGuigan, William	1
Meyers, Lowell	1
Moore, Kevin	1
Morris, Jeremy	1
Morris, Roy Jr.	1
Nargi, Anthony	1
Nichols, David	1
Nichols, John III	1
Page, Louis	1
Patton, William	1
Pettigrew, Kenneth	1
Richard, Lawrence*	1
Schumacher, Frank	1
Shea, Joseph	1
Shoemaker, Steven	1
Smith, John Jr.	1
Southwick, Charles	1
Speer, Paul	1
Swartz, Theodore	1
Teague, Foster	1
Tucker, Robert Jr.	1
Ulrich, Geoffrey	1
Vampatella, Philip	1
Weigand, Gerry	1
Wise, James	1
Wood, Philip	1
Wright, Marshall	1
Wyman, Richard	1
Hartman, Charlie	0.5
Johnson, Clinton	0.5
*denotes USMC aircrew	

#### Vietnamese People's Air Force

Nguyen Van Coc	9
Nguyen Duc Soat	6
Nguyen Tien Sam	5
Pham Phu Thai	3
Tran Viet	3
Vu Ngoc Dinh	2.5
Dang Ngoc Nu	2
Do Van Lanh	2

Le Thanh Dao	2
Nguyen Ngoc Do	2
Nguyen Van Nghia	2
Nguyen Van Bay	1.75
Nguyen Dang Kinh	1.5
Le Hai	1.25
Ngo Duc Mai	1.25
Bui Thanh Liem	1
Dinh Tan	1
Dong Van Song	1
Duong Truong Tan	1
Ha Vin Thanh	1
Han Vinh Tuong	1
Hoang Quoc Dung	1
Le Minh Huan	1
Le Truong Huyen	1
Luu Huy Chao	1
Pham Tuan	1
Ngo Duy Thu	1
Ngo Van Phu	1
Nguyen Dinh Phuc	1
Nguyen Hong Nhi	1
Nguyen Huu Diet	1
Nguyen Manh Tung	1
Nguyen Nhat Chieu	1
Nguyen Van Ba	1
Pham Hung Son	1
Tran Hanh	1
Vo Si Giap	1
Vo Van Man	1
Nguyen Van Tho	0.75
Ha Bon	0.5
Nguyen Ba Dich	0.5
Nguyen The Hon	0.5
Cao Thanh Tinh	0.25
Hoang Van Ky	0.25
Nguyen Van Trung	0.25
Pham Van Tuc	0.25
Phan Thanh Trung	0.25

## ***Glossary***

*Douglas A-1 Skyraider*—Originally developed for use over Japan in the closing days of World War II, the A-1 instead first saw action in Korea. Because it was propellor-driven, the A-1 could stay aloft longer and carry more ordnance than comparable jet fighters. It also gained a reputation for toughness. By Vietnam, the A-1 was slated for retirement, but because it had better range and loiter time than jets, stayed in service as counterinsurgency and SAR support aircraft. Lovingly called the “Spad” by its pilots, the A-1 was withdrawn from service by the US Navy in 1969, and by the USAF in 1973. The South Vietnamese Air Force used A-1s extensively for the entire length of the conflict. A-1s carried four 20mm cannons as internal armament.

*Douglas A-4 Skyhawk*—Designed by Ed Heinemann, the same man who had designed the A-1, the A-4 was intended to replace the earlier, propellor-driven multirole fighter. Despite its diminutive size, the A-4 could carry its own weight in ordnance, and proved capable of taking heavy battle damage. Nonetheless, more A-4s were lost in Vietnam than any other Navy or Marine Corps aircraft. When stripped down, the A-4 made a superb “adversary” trainer, easily capable of outflying larger, more sophisticated opponents. Top Gun used the A-4 as a MiG-17 simulator until 2001. Other A-4s remain in service worldwide. Besides bombs, the Skyhawk was equipped with two 20mm cannons and was capable of carrying Sidewinder heat-seeking missiles, though this was not used operationally during Vietnam.

*Grumman A-6 Intruder*—Primary attack aircraft used by the US Navy beginning in 1965, replacing A-4 Skyhawks in the bomber role in carrier-based VA (Attack) units. The A-6 was legendary for its ability to strike targets in all weather conditions and darkness. It carried no defensive armament. Intruders remained in US Navy and Marine Corps service until the mid-1990s.

*LTV A-7 Corsair II*—Strike aircraft, similar in design to the F-8 Crusader. A-7s replaced A-1 Skyraiders and was so capable in its role that the USAF also bought A-7s to replace their A-1s. It was known as SLUF (Short Little Ugly Fella) for its stubby appearance. A-7s entered service in 1968 and served in both the US Navy and USAF until 1992. US Navy A-7s carried two 20mm cannon for defensive armament; USAF A-7s had a single Vulcan 20mm gatling cannon. Both versions were capable of carrying Sidewinders as well.

*Cessna A-37B Dragonfly*—Built off of the T-37 Tweet USAF jet trainer, the A-37 included an internal gun, armor, and twelve hardpoints for ordnance. It was intended solely for counterinsurgency operations, and as such was operated by the SVAF. Captured SVAF Dragonflies were used to launch airstrikes on Saigon and Tan Son Nhut airport in the waning days of the fall of South Vietnam.

*AA-1/RS-2 “Alkali”*—Soviet-designed radar-guided missile. The RS-2 was a “beam-rider,” in which it required radar illumination of its target from the aircraft firing the missile. The missile was not very effective in combat and rarely carried. “AA-1 Alkali” was its NATO reporting name.

*AAA—Antiaircraft Artillery.* AAA, or “flak” as it is generally known, ranges from optically-ranged heavy machine guns to 100mm artillery pieces guided by radar. AAA has been responsible for more losses in every war than any other cause, since its introduction in World War I. Pilots also refer to AAA as “Triple-A.” See also *Flak*.

*Lockheed AC-130 Spectre*—Conversion of the Lockheed C-130 Hercules medium cargo transport, the AC-130 was designed specifically for very close air support, or “gunship” role. Vietnam-era AC-130s carried a wide mix of weaponry from 20mm gatling cannons to 105mm howitzers, and were highly effective against truck traffic on the Ho Chi Minh Trail. AC-130s remain in service today.

*ACM*—Air Combat Maneuvering; shorthand for the maneuvers used in air-to-air combat.

*AGM-12B Bullpup*—An early precision-guided missile developed by the USAF. Because the Bullpup relied on radar return from its firing aircraft, it required the firer to remain on a straight and level course during its flight. The Bullpup was notoriously unreliable and was withdrawn from service by 1967.

*AGM-45 Shrike*—An anti-radiation (antiradar) missile, the Shrike was developed to home in on and destroy the radar guiding SAM missile batteries. For the Shrike to be effective, the firing aircraft had to keep the target illuminated until the Shrike was able to detect the radar beam emanations from the target. The Shrike was very effective, but could be defeated by switching off the radar it was guiding on. The Shrike was replaced by the self-guiding AGM-88 HARM.

*AGM-62 Walleye*—Another early precision-guided weapon, developed by the US Navy. The Walleye was steered to its target by the pilot of the firing aircraft via a joystick. While this required the pilot to divide his time between flying the missile and flying his own aircraft, the Walleye was the first truly effective guided munition in US service. Walleyes are still used today.

*AIM-4 Falcon*—Early air-to-air missile developed by the USAF for its air defense units. The Falcon required liquid nitrogen to cool its seeker head, so it could better detect heat sources. Falcons came in three varieties—heat-seeking, radar-guided, and nuclear—but only the heat-seeking Falcon was used over Vietnam. Most pilots despised the Falcon for its unreliability, but it remained in service until 1988.

*AIM-7 Sparrow*—The primary radar-guided air-to-air missile used by the United States over Vietnam. The Sparrow was a large missile with an equally impressive warhead, and was guided by the firing aircraft's radar. This required the firing aircraft to maintain a lock-on at all times. The Sparrow was also notoriously unreliable, and though it was gradually improved, it never quite shed this reputation. The Sparrow was replaced by the self-guiding AIM-120 AMRAAM just after Operation Desert Storm.

*AIM-9 Sidewinder*—First developed by the US Navy in the early 1950s, the Sidewinder was a heat-seeking missile, homing in on the heat source of a hot engine. Early Sidewinders (AIM-9B through AIM-9J) were “rear-aspect” only, which meant they had to be fired from behind the target. Modern Sidewinders (AIM-9L through AIM-9X) can home in from any angle, and are sensitive enough to guide on the reflection of the sun on an aircraft canopy. Despite its age, the Sidewinder's reliability has kept it into service to this day.

*Alpha Strike*—An Alpha Strike is a massive attack launched by an aircraft carrier Combat Air Wing (sometimes more than one), using virtually every type of aircraft onboard. This includes strike aircraft, fighter escorts, fighter CAPs, standoff jamming support, airborne early warning aircraft, and other supporting aircraft. Originating in Vietnam, Alpha Strikes continue in use today.

*An-2 “Colt”*—A light biplane transport developed by Antonov in the Soviet Union. Despite its ancient appearance, the An-2's easy maintenance and reliability have kept it in service with many world air forces from its introduction in 1947 to present. The VPAF used An-2s for covert arms drops, general utility duties, and as emergency light bombers.

*ARVN*—Army of the Republic of Vietnam; the South Vietnamese Army.

*Boeing B-52 Stratofortress*—American heavy bomber of the Vietnam War. The B-52 was designed at the end of World War II and entered service as a strategic nuclear bomber in 1952. When the United

States began to get involved in non-nuclear conflicts, the USAF decided to convert the older “tall-tail” B-52Ds to carry conventional bombs—up to 117 of them. Used in South Vietnam in Operation Arc Light, the effect of a B-52 strike could decimate entire VC/NVA divisions. Starting with Operation Freedom Train in 1971, B-52s were allowed to strike targets north of the DMZ, and were found to be equally effective in attacking area targets as well. During Operation Linebacker II, B-52s were used against targets in the metropolitan area of Hanoi for the first time, with devastating results; included in Linebacker II sorties were newer “short-tail” B-52Gs, which carried a less comprehensive ECM self-protection suite and less bombs. B-52s also carried defensive armament in the form of four machine guns in a tail turret. While the B-52D was withdrawn in 1982, B-52H variants (broadly similar to the B-52G) will be in service until 2020—becoming the aircraft with the longest record of service in American history. The six-man crew of B-52s have always referred to their aircraft as “BUFFs” (Big Ugly Fat Fellow).

**BARCAP**—Barrier Combat Air Patrol. BARCAP is designed to defend carrier task groups from enemy aircraft and cruise missiles, and usually orbit between the task group and unfriendly shores.

**Beeper**—Every aircrew in the American armed forces during Vietnam carried a small homing beacon, called a “beeper” by pilots. Beepers were automatically activated upon ejection and sent out an unmistakable, wailing noise over radio channels. This notified other aircrew that someone was down, and beepers could be homed in on by rescue forces. Unfortunately, beepers also had a side effect of jamming communications and could also be homed in on by the North Vietnamese; most pilots, if they were able, switched off their beepers while still in their parachutes.

**Blue Tree**—US Navy code name for reconnaissance sorties over North Vietnam during the 1968-1972 bombing halt.

**Bomb Cell**—To better enhance their ECM and self-defense capabilities, B-52 Stratofortress bombers tended to fly in three-aircraft “cells” while in the combat area. This hearkened back to the combat boxes flown by American bombers over Europe and the Pacific, for the same reason.

**Buffalo Hunter**—USAF codename for BQM-134 Firebee remotely-piloted reconnaissance drones that flew over North Vietnam. The Buffalo Hunters were the forerunner of today’s unmanned Predator and Global Hawk drones.

**Bullet Shot**—Codename for the emergency deployment of USAF aircraft to Vietnam starting in 1971, ordered by President Richard Nixon in preparation for Operation Freedom Train and later Linebacker.

**Bullseye**—Pilot shorthand for Hanoi. By using Hanoi as a central point of reference, flight controllers and aircrew could give flight headings and directions quickly and succinctly.

**BVR**—Beyond Visual Range. BVR missiles are usually guided by radar (either the firing aircraft’s or their own), and can be fired beyond the range of a pilot’s eyesight—hence the term. The AIM-7 Sparrow was a BVR missile, and technically had a 26-mile range.

**Fairchild C-123B Provider**—A medium transport developed as a supplement to the larger C-130 Hercules. Providers were heavily used in Vietnam, especially by the CIA-sponsored Air America in Laos. Providers were generally withdrawn from service after 1973.

**Sikorsky CH-3E Jolly Green Giant/SH-3 Sea King**—The SH-3 Sea King was ordered by the US Navy in the late 1950s as a combination antisubmarine and search-and-rescue helicopter, and served throughout Vietnam as a SAR platform, rescuing dozens of pilots from the Gulf of Tonkin. The CH-3 was the USAF’s version, lacking antisubmarine equipment. Because CH-3s usually operated over land,

they were more heavily armed and armored than the Navy's SH-3s. While the CH-3 was replaced by the HH-53 Super Jolly Green Giant from 1968, the SH-3 soldiered on in Navy service until 2002, replaced by the SH-60 Seahawk. Defensive armament carried by "Jolly Green" and "Big Mother" SAR helicopters ranged from light machineguns to 7.62mm Minigun gatling cannons.

*Chaff*—Originally known as "Window" by the British Royal Air Force, who developed it, chaff is thin strips of aluminum foil, cut to a certain length corresponding to the wavelength of radars. When released in midair, chaff spreads out and can saturate a radar picture with thousands of false targets. It is highly effective in jamming radar.

*Check Six*—Pilot slang for looking behind the aircraft, where enemy aircraft are likely to be if the latter is attacking. This refers to the clock system used by fighter pilots to quickly identify threats—twelve being straight ahead, six being directly behind, and so on. Check Six has also entered into fighter pilot lexicon for watching one's behind ("When you're in that thesis defense, be sure to always check six") and as a farewell ("Check six, pal").

*College Eye/Disco*—USAF codename for EC-121 Warning Star airborne early warning aircraft, flying over Laos and the Gulf of Tonkin. College Eye was the code used during Rolling Thunder; it was changed to Disco after 1970. These aircraft provided early warning of MiGs in the area, and because they operated at high altitude, were not limited by terrain like ground-based radar. See also *EC-121*.

*Combat Tree*—USAF codename for a highly-classified system that could detect IFF pulses from VPAF MiGs. Using Combat Tree, aircrew could quickly pick out MiGs even among American aircraft.

*DMZ*—Demilitarized Zone. In Vietnam, the DMZ represented the border between North and South Vietnam, roughly along the Ben Hai River between Dong Hoi and Quang Tri.

*Grumman E-1B Tracer*—A smaller version of the EC-121, built off of the S-2 Tracker antisubmarine aircraft. E-1s were later replaced by the more capable, purpose-built E-2 Hawkeye airborne early warning aircraft, beginning in 1970.

*Lockheed EC-121/WV-2 Warning Star*—Converted from the civilian Constellation airliner, the EC-121 had radars above and below the fuselage, allowing them to "see" deep inside enemy territory without risking the aircraft. The EC-121 was the first effective airborne early warning aircraft to be developed in the world. They were replaced after Vietnam by today's E-3 Sentry. WV-2 was the early, pre-1962 Navy designation for the EC-121. See also *College Eye/Disco*.

*Grumman EA-6B Prowler*—The US Navy's dedicated ECM aircraft, the EA-6B was converted from the A-6 Intruder attack aircraft. It carries a four man crew instead of two men, and is festooned with aerials and antennae to jam enemy radars. The EA-6B first entered service at the end of Operation Linebacker and has remained in US Navy and Marine Corps inventories since.

*Douglas EB-66C/RB-66C Destroyer*—The USAF's version of the US Navy's A-3 Skywarrior series, the EB-66 was converted from redundant B-66 Destroyer medium bombers by sealing the bomb bay shut and adding four more crew to operate ECM systems. Like EA-6B, the EB-66C was designed to provide standoff jamming of enemy radar and communications systems. The RB-66 was also converted from B-66s, but carried cameras in the bomb bay instead of ordnance. Because North Vietnam was so dangerous, RB-66s were generally not used north of Thanh Hoa after 1966. EB-66s operated on the fringes of North Vietnamese airspace for the duration. Both types were withdrawn from service at war's end.

*ECM*—Electronic Counter-Measures. ECM represents everything from small self-protection jamming

devices carried onboard fighter aircraft to large, comprehensive electronic suites carried by dedicated ECM aircraft, such as the EA-6B Prowler. The basic purpose of ECM is to jam enemy radar, presenting false images on the screen, or flooding the return with electronic white noise. ECM is also used to jam enemy radio links.

*Douglas EKA-3B Skywarrior*—The US Navy's version of the USAF's EB-66, though these were converted from KA-3B tankers and not bombers. Because they retained the ability to refuel aircraft in flight, they retained the KA-3B designation.

*End Sweep*—The last per se combat operation flown by United States forces during the Vietnam War. This was to clear the coastal harbors of North Vietnam of mines placed there before Operation Linebacker.

*Lockheed EP-3 Orion*—A conversion of the P-3 Orion land-based antisubmarine/maritime patrol aircraft. The EP-3s used in Vietnam supplemented the EKA-3B Skywarriors and were used both in the standoff jamming and signals intelligence (SIGINT) role. They were one of the contributors to the Teaball system. EP-3s remain in service.

*McDonnell Douglas/Boeing F/A-18 Hornet*—Multirole combat fighter developed by the US Navy and Marine Corps from the failed Northrop YF-17 Cobra light fighter. Able to switch from attack to fighter roles with the flick of a switch, the F/A-18 is one of the "teen" fighters developed during the 1970s that incorporated lessons learned over Vietnam. Hornets are currently the backbone of US Navy and Marine Corps fighter and attack units.

*North American F-100 Super Sabre*—Originally conceived as a development of the Korean War-era F-86 Sabre, the F-100 was in fact a completely new aircraft. It was the first American aircraft to exceed the speed of sound in level flight. In Vietnam, F-100s were used generally as fighter-bombers, though early in the war, they also served in fighter escort and anti-SAM "Wild Weasel" roles. The F-100 was relegated to South Vietnam close air support missions after 1966; despite its speed, it was too slow to keep up with the faster F-105s it was supposed to escort. F-100s were withdrawn from service not long after the Vietnam War, replaced by A-7 Corsair IIs. Pilots referred to the Super Sabre as the "Hun." Besides bombs, the F-100 was equipped internally with four 20mm cannon.

*Republic F-105D Thunderchief*—The workhorse of Rolling Thunder bombing missions, the F-105D Thunderchief was originally designed as a tactical nuclear bomber. Able to carry as much of a bombload as a B-17 bomber, the F-105 was the largest single-pilot fighter-bomber ever built. It became loved by its pilots because of its ability to outrun any other aircraft at low altitude, and its ability to absorb great amounts of battle damage. Several dozen F-105s claimed shot down by the VPAF were actually able to return to their home bases in Thailand, though some never flew again. Its one Achilles heel was its hydraulic system, which was vulnerable to damage from below; F-105s without hydraulics were doomed to crash. It had an advantage over the F-4 Phantom in close-range combat because it retained an internal Vulcan 20mm cannon; it was also capable of carrying Sidewinders. Because of a number of accidents early in its career, F-105s were referred to as "Thuds," but the name stuck as a badge of honor. Less flattering names given the aircraft also included "Ultra Hog," "Lead Sled," and "Squat Bomber." F-105s took the brunt of combat losses over North Vietnam, with some units taking over 50 percent casualties. Because of this, the single-seat F-105Ds were withdrawn from Vietnam service by 1969 in favor of F-4s. The survivors soldiered on until 1983, when they were replaced by Fairchild A-10 Thunderbolt IIs.

*Republic F-105F/G Thunderchief*—A two-seat version of the F-105D, the F-105F was intended to be a two-seat conversion trainer for new Thunderchief pilots. The inability of the F-100 "Wild Weasels" to keep up with the F-105D strike aircraft led to F-105Fs being converted to replace the F-100s in the

anti-SAM role. The performance of the F-105Fs was brilliant, but the crews paid the price—"Wild Weasel" squadrons sustained casualty rates approaching 80 percent. As the SAM threat became more sophisticated, the surviving F-105Fs were converted to F-105Gs, which added more comprehensive sensors and ECM equipment. G models served through both Linebacker operations, and survived in USAF service until 1983, when they were replaced by F-4G "Wild Weasel" Phantoms.

*Convair F-102 Delta Dagger*—The F-102 Delta Dagger was designed as a dedicated air defense aircraft, protecting the continental United States from Soviet bombers. It was the first American delta-winged aircraft to enter service. The F-102's main armament consisted entirely of AIM-4 Falcon guided missiles and unguided rockets. In Vietnam, F-102s were deployed to defend American bases from the threat of VPAF airstrikes; though no airstrikes occurred during the period of American involvement, F-102s were also used to escort EC-121s and EB-66s over Laos and, rather foolishly, as ground attack aircraft. The F-102s were withdrawn from Vietnam by 1970, and thence from USAF service, being replaced by the F-106 Delta Dart. F-102s were habitually called "Deuces" by their pilots.

*Convair F-106 Delta Dart*—The F-106 resembled the F-102 enough that it was originally designated F-102B. Since it was larger, faster, and more maneuverable, it was redesignated F-106 Delta Dart when it entered service in the late 1950s. F-106s were not used in Vietnam, but the US Navy occasionally asked air defense units equipped with F-106s to simulate MiG-21s; both were fast, delta-winged aircraft, though the "Six" was significantly larger. F-106s became one of the longest-lived fighters in USAF history, protecting the continental United States from Soviet bombers from 1962 to 1988, when they were finally replaced by F-15 Eagles and F-16 Fighting Falcons.

*General Dynamics F-111 Aardvark*—The F-111 design was lauded by Secretary of Defense Robert McNamara as being able to perform all roles for all services. The result was less spectacular, as the USAF's F-111As were decimated on their first deployment to Vietnam in 1967, and the Navy's F-111B air defense fighters never progressed beyond the prototype stage. The USAF tracked down the F-111's problems during the 1968-1971 lull and corrected them. The result was one of the finest medium bombers ever built, capable of striking in all weathers and at high speed. F-111s proved invaluable during Operation Linebacker and Linebacker II, especially in cratering VPAF runways. Gradually updated, F-111s saw service through the 1980s, finishing with a superlative performance during Operation Desert Storm. They were withdrawn from USAF service in favor of the F-15E Strike Eagle from 1995. The name "Aardvark" comes from the F-111's distinctive long, flattened nose.

*Grumman F-14 Tomcat*—Following the failure of the F-111B, the US Navy accepted Grumman's design for a dedicated fleet defense fighter, built around the long-range AIM-54 Phoenix self-guiding missile and the revolutionary AWG-9 fire control system. The F-14 entered service just too late to see action over Vietnam, though it covered the final withdrawal of Americans in 1975. F-14s went on to an excellent career in Navy service, and will remain in the inventory until 2005.

*McDonnell Douglas F-15 Eagle*—The F-15 was built directly from lessons learned over North Vietnam. Despite its large size, its maneuverability, range, and design emphasized air combat. The vindication of its design has come in the various wars of the 1980s and 1990s. It remains in service today. There is also a dedicated strike variant, the F-15E Strike Eagle.

*General Dynamics/Lockheed Martin F-16 Fighting Falcon*—One of the lessons of the Vietnam War was that smaller was in some cases better, and the F-16 was designed as a low-cost, small technology demonstrator. Like the F-15, it incorporated air combat lessons learned over Vietnam as well. The USAF liked the design so much that it put it into production; today the F-16 is the most prolific fighter in the Western world.



*McDonnell F2H Banshee*—One of the US Navy's first carrier-based jet fighters, the F2H Banshee was a straight-winged, strictly subsonic aircraft. It was used extensively during Korea as a strike aircraft. Banshees were withdrawn in the mid-1950s in favor of A-4 Skyhawks.

*McDonnell Douglas F-4B/C/D Phantom II*—Possibly the most important aircraft of the Vietnam War from the American perspective, the two-seat F-4 Phantom II was originally developed strictly as a fleet defense fighter, protecting carriers from Soviet bombers. Its ungainly design reflected its naval origins and the necessities of landing a large fighter onboard a comparatively small aircraft carrier. It was also found to be an excellent fighter-bomber, so the F-4 became the world's first widely-used multirole aircraft. The US Navy, during the duration of the Vietnam War, used the F-4B in both fighter and strike roles; overall, the F-4B was the most successful US Navy and Marine Corps fighter used during Vietnam. The USAF evaluated the F-4B and liked its potential, so essentially de-navalized F-4Bs entered USAF service as F-4Cs. The subsequent F-4D, which entered service in 1967, was developed as a strictly USAF version, and despite its emphasis on ground attack and its lack of an internal gun, the F-4D was the most successful USAF fighter of the Vietnam War. Nearly all surviving Navy F-4Bs were converted to F-4J standard, while the USAF's F-4Cs and Ds were withdrawn from frontline service after the Vietnam War. Phantoms were often nicknamed "Double Ugly" by its crews because it had two pilots, two engines, and was not aesthetically pleasant to look at. All three versions suffered from the thick brown smoke trails left by the J79 turbojets, which made them easy to see by both friend and foe. Common armament for US Navy and USAF Phantoms was four AIM-7 Sparrows and two to four AIM-9 Sidewinders; USAF F-4C/Ds also carried AIM-4 Falcons and SUU-23 20mm gunpods.

*McDonnell Douglas F-4E Phantom II*—The F-4E version of the Phantom was a direct result of air combat operations during the Rolling Thunder period. This version incorporated a longer, thinner nose with an internal M61A1 Vulcan 20mm gatling cannon and other aerodynamic improvements. Unlike the F-4D, the F-4E was intended mostly for air combat. It entered service in 1971 and saw extensive combat during both Linebacker operations. F-4Es gradually replaced all other F-4 variants (with the exception of F-4G "Wild Weasels") in USAF service, and soldiered on until 1992, when they were replaced by F-15 Eagles.

*McDonnell Douglas F-4J Phantom II*—Experience over North Vietnam led the US Navy to upgrade its F-4Bs to F-4J status. Outwardly, the aircraft were little different, but the F-4J incorporated better avionics, better ECM self-protection, and upgraded engines that did not leave a distinctive smoke trail. F-4Js were used during the Linebacker operations, and were themselves upgraded in the late 1970s to F-4N/S standard. These aircraft finally left US Navy and Marine Corps service in 1989.

*Northrop F-5 Tiger II/T-38 Talon*—Developed as low-cost export fighter, the F-5A Freedom Fighter was combat-tested in South Vietnam and later exported to a number of friendly countries by the United States. The F-5E Tiger II was a more advanced version of the F-5A with a radar and improved engines. Both F-5As and Es were supplied to the SVAF, though none are known to have been used in air combat. The US Navy, when it formed the Top Gun program, found the F-5E to be a perfect simulator for the MiG-21, as it had similar flight characteristics and size; the USAF later adopted F-5Es for the same purpose in Red Flag. The T-38 Talon is the two-seat trainer version of the F-5, and was also used as a MiG-21 simulator. While the USAF has withdrawn its F-5s from the adversary program, the US Navy continues to use theirs.

*LTV F-8/RF-8 Crusader*—The F-8 entered service in the mid-1950s, and as such was a result of the Korean War experience, in which speed and maneuverability were emphasized over any other concerns. The F-8 was very fast, surprisingly maneuverable, and carried four 20mm cannon. This gave it a distinct advantage over the F-4Bs it supplemented, and many Crusader pilots were still trained in ACM tactics. The F-8's 6 to 1 kill ratio over North Vietnam from 1965-1968 is unrivalled by any other American aircraft. Because of its age, the F-8 was generally withdrawn from frontline US Navy

service after 1969; only two squadrons of F-8s were present during the Linebacker operations. The US Marine Corps also used them, fairly successfully, as close air support aircraft in South Vietnam. Called the “Last of the Gunfighters” by naval aviators (among more ribald terms), the F-8 was replaced by the F-14 Tomcat and F-4J Phantom IIs by 1973. RF-8 photo-reconnaissance versions of the Crusader served throughout the Vietnam War and paid a heavy price for a risky mission. Surviving RF-8s lasted until 1982.

*North American F-86 Sabre*—The F-86 incorporated German swept-wing research with air combat lessons from World War II, and the result was one of the finest fighter aircraft ever built. Many Vietnam War fighter pilots got their start in F-86s. Though indifferently armed (six machine guns), the F-86 was the most successful fighter of the Korean War. Sidewinder-armed F-86s also saw extensive service in Taiwanese and Pakistani air units.

*Grumman F9F Panther*—Similar to the F2H Banshee in design, the F9F Panther was the US Navy’s last straight-winged fighter and was used extensively in Korea. Though at a severe disadvantage against the MiG-15, Panther pilots were able to utilize their superior training to score kills. Panthers were later replaced by swept-wing F9F-6 Cougars, which in turn were replaced by F-8 Crusaders in the late 1950s.

*Feet Wet/Feet Dry*—US Navy parlance for crossing the North Vietnamese coast, either heading towards a target (“feet dry”) or egressing from a target (“feet dry”).

*Fighter Weapons School (FWS)*—Training program for USAF fighter pilots. It is broadly similar to Top Gun, but is geared more towards utilizing all offensive aspects of a given aircraft design, rather than only air combat, though USAF FWS squadrons are part of Red Flag. See also *Top Gun* and *Red Flag*.

*Flak*—Slang for antiaircraft fire. Flak is derived from the German acronym for *fliegerabwehrkanone*, or antiaircraft cannon. See also AAA.

*Flaming Dart I/II*—Operation Flaming Dart I and II were President Lyndon Johnson’s punitive retaliatory airstrikes for Viet Cong attacks on the Pleiku barracks and Bien Hoa airbase. The ineffectiveness of Flaming Dart to stop VC attacks in the South led to the enactment of Operation Rolling Thunder.

*FORCAP*—Force Combat Air Patrol. This was begun by the US Navy around 1967 to provide direct fighter escort to strike units, from the North Vietnamese coast, to the target, and back. This was different from TARCAP, in which the fighter escorts only provided support over the target area.

*Freedom Train*—Operation launched by President Richard Nixon against NVA buildups north of the DMZ and on the Ho Chi Minh Trail in late 1971.

*Fresh Bath Alpha*—Possibly the strangest name for any operation in the Vietnam War, Fresh Bath Alpha consisted of strikes in the Haiphong and Yen Bai areas, the former with B-52s. It was intended by President Nixon as being both an inducement for Hanoi to restart peace talks, and to reduce supplies coming in from China and through Haiphong.

*Frequent Wind*—The final American operation of the Vietnam War. Frequent Wind was the evacuation of more than 10,000 American citizens in South Vietnam, along with as many as 30,000 South Vietnamese civilians. Though the VPAF raided Tan Son Nhut airport outside of Saigon, it otherwise did not interfere with the evacuation.

*Furball, dogfight*—Pilot slang for close-range air-to-air combat, usually involving more than two aircraft. Dogfight dates from World War I, where the savagery of air combat reminded pilots of fights between rival dogs. The term “furball” got its start in Vietnam, and has the same origins—fur flying.

*GCI*—Ground Controlled Intercept. Under Soviet fighter doctrine, adopted by the VPAF, fighter pilots are maneuvered to their target by following the strict orders of ground-based GCI controllers using ground-based radar. Under American doctrine, GCI controllers have much less control over pilots, and in Vietnam, used both ground, sea, and air-based radar systems.

*Folland/Hawker-Siddeley Gnat*—A small aircraft originally designed as a jet trainer for the British Royal Air Force, Gnats were used successfully as fighters by the Indian Air Force during the Indo-Pakistani Wars of 1967 and 1971.

*Hanoi Hilton (Hoa Lo Prison)*—Quite possibly the most feared place in Vietnam, from the American perspective, the Hoa Lo (Fiery Furnace) Prison compound was built by the French to house Viet Minh revolutionaries. The North Vietnamese utilized it to house solely American aircrew prisoners of war (though at least one SVAF POW was held as well), starting with Everett Alvarez, Jr., in 1965. Pilots nicknamed it the Hanoi Hilton, and also named the various buildings around the compound after hotels in Las Vegas, such as the Mint and the Frontier. Newcomers were kept in New Guy Village for a period until they were placed in other cells. Conditions were abominable: prisoners were fed mostly with rice and pumpkin soup, baths were infrequent, and sanitary facilities consisted of a bucket. Torture was the norm until 1969, and consisted of being bound by ropes, disfigurement, hung upside down and water poured down the nose, beatings with fan belts and rubber hoses, and weeks of being bound in stocks. Many pilots were tortured to death. Until 1971, pilots were mostly kept in solitary confinement, and communicated by the use of a tap code. There was one escape from the Hanoi Hilton in 1968, but both men were recaptured after twelve hours; one was beaten to death. Though there were many other prisons in North Vietnam—Dogpatch near the Chinese border and Son Tay being the two best known—all American aircrew were concentrated in the Hilton after the Son Tay Raid of 1970. Surviving prisoners were released in two batches in February and March 1973. Today, the main building of the Hanoi Hilton is a museum, while the outlying buildings have been demolished for, ironically, a hotel.

*Harbormaster*—Callsign of US Navy GCI controllers onboard destroyers in the Gulf of Tonkin. Harbormaster’s responsibility was to control the activities of Navy fighter aircraft, enabling them to better intercept VPAF MiG attacks. Harbormaster destroyers began operations in 1968. (Note that ships also retained their own callsigns when controlling fighters—the author’s father used the callsign Regency Six when controlling fighters from USS *Yorktown*.)

*Hawker-Siddeley/British Aerospace Harrier*—Developed in the mid-1960s as a ground attack aircraft, the Harrier is unique in that it is the only vertical take-off and landing (VTOL) fighter to be used on a large-scale basis and in combat. In 1980, British Aerospace modified land-based Harriers into multirole Sea Harriers for use on British Royal Navy light carriers. These aircraft performed yeoman service during the Falklands War, though their maneuverability was somewhat exaggerated. The Harrier remains in British service; the US Marine Corps uses suitably modified versions as the AV-8B.

*Have Drill/Have Doughnut/Have Idea*—Codename for the top secret training and evaluation program jointly enacted by the USAF and US Navy in the late 1960s, using captured Soviet bloc MiG fighters. The entire program was known as Have Idea. Have Drill was the code for the captured MiG-21s, while Have Doughnut was used for MiG-17s. The Have Idea program was not declassified until the late 1990s. The word “Have” is generally used by the USAF for top secret research programs; Have Blue led to the development of the F-117A Nighthawk stealth fighter.

*Lockheed HC-130P Hercules*—C-130 Hercules cargo transports converted to SAR coordination aircraft. Instead of cargo, the HC-130 carried personnel with specialized radios and a radar to coordinate efforts to rescue airmen. Callsign “Crown,” these were invaluable in situations where more than one American airman was on the ground in North Vietnam or Laos, which was usually the case. HC-130s are still in service.

*Sikorsky HH-53B Super Jolly Green Giant*—A version of the US Marine Corps’ CH-53 Sea Stallion heavy transport helicopter, the HH-53B, nicknamed “Super Jolly Green Giant” by its crews, was converted for the SAR role by the addition of external fuel tanks, inflight-refuelling capability, and defensive armor and armament. Because they had a longer range and could carry more than the older CH-3s, the HH-53s rapidly replaced the older helicopters and rescued hundreds of downed airmen following its introduction in 1969. Updated versions, the latest being the MH-53P Pave Low IV, are still in USAF service in the same role.

*Hawker Hunter*—British all-weather fighter of the 1950s, and generally considered to be the finest British jet fighter design ever built. The Indian Air Force used Hunters to great effect during the Indo-Pakistani Wars.

*IFF*—Identification Friend or Foe. IFF equipment sends out a coded radar pulse that allows radar controllers and friendly aircraft to identify other friendly aircraft, thereby preventing firing on one’s own planes. Since IFF can also be picked up by the enemy, it is usually switched off over enemy territory. See also *Combat Tree*.

*Iron Hand*—Codename for flak suppression aircraft, usually carrying a mix of conventional bombs, cluster bombs, and rockets. Iron Hand is also occasionally used for missions against SAM sites, though technically this is the job of Wild Weasel aircraft.

*JCS*—Joint Chiefs of Staff, the four most high-ranking men in the American armed forces. This also refers to the “JCS List,” a list of the over 100 bombing targets picked by the JCS in 1965 before the start of Rolling Thunder, ranked by their effectiveness at destroying North Vietnamese warmaking capability. “JCS Targets” were targets picked from this list, though it was President Lyndon Johnson, Secretary of Defense Robert McNamara, and Secretary of State Dean Rusk who usually did the picking.

*Jolly Green*—Codename for USAF helicopter rescue forces. It refers to a popular TV commercial for frozen vegetables during the 1960s. SAR helicopters were among the first aircraft to be camouflaged, and SAR crews adopted a light green flight suit to further the image.

*K-13/AA-2/R-3S “Atoll”*—The principal Soviet-designed air-to-air missile used by the VPAF in the Vietnam War. K-13 and AA-2 are the NATO designations for the missile; the formal Russian designation is R-3S. A direct copy of the American AIM-9 Sidewinder, Atolls were less efficient because they relied on liquid nitrogen to cool the seeker head; like the early Sidewinders, Atolls could only be fired from behind the target (to home in on its engine heat). While still in limited use by former Soviet bloc nations, Atolls have been mostly replaced by the far superior R-60 (AA-8) “Aphid,” comparable to the AIM-9L Sidewinder.

*Douglas KA-3B Skywarrior*—In the early 1960s, the US Navy converted most of their A-3 Skywarrior carrier-based nuclear bombers to air refuelling tanker aircraft. Nicknamed the “Whale” for its huge size—it was the largest aircraft used regularly from an aircraft carrier—KA-3s performed the same function as USAF KC-135 Stratotankers. They were replaced in the mid-1980s by KA-6D Intruders.

*Karst*—limestone outcroppings formed by erosion. Karst is common throughout Southeast Asia, and

presented a danger to American pilots (and sometimes Vietnamese ones) for three reasons: their gray color made them difficult to see in low clouds, they often rose above other terrain in the area by several thousand feet, and their porous interior made them excellent positions for hiding AAA positions.

*Boeing KC-135 Stratotanker*—Built on roughly the same airframe as the very successful Boeing 707 airliner, the KC-135 was the first aircraft designed solely as an air refuelling tanker. Under Operation Young Tiger, several squadrons of KC-135s were deployed in and around Southeast Asia to support American airstrikes on North Vietnam. Without them, no USAF strikes from Thailand would have been possible. KC-135 crews were beloved by fighters for their willingness to risk their lives to get fuel to needy aircraft; on several occasions, KC-135 crews broke regulations by flying into North Vietnamese airspace to refuel battle-damaged fighters. Despite entering service in 1954, refurbished KC-135s remain the USAF's principal tanker aircraft today.

*Kingpin*—The Son Tay Raid of 1970. Operation Kingpin was a well-rehearsed, top secret mission using USAF helicopters and US Army Special Forces to rescue American POWs from the Son Tay Prison west of Hanoi. The operation was brilliantly executed, but no Americans were found at the prison—it had been closed because of flooding from the nearby Red River. The single American casualty was a broken ankle. Kingpin was supported by several hundred USAF and Navy fighters, and represented the largest mission undertaken north of the DMZ between Rolling Thunder in 1968 and Freedom Train in 1971.

*Linebacker*—Operation launched by President Richard Nixon in May 1972, following the North Vietnamese Easter Offensive. It renewed bombing over North Vietnam and was considered generally successful.

*Linebacker II*—Operation launched by President Richard Nixon in December 1972, following the breakdown of peace talks following the conclusion of Operation Linebacker. Linebacker II was a massive air assault against targets in and around Hanoi and Haiphong, using B-52 bombers. It too is credited as being successful, given Nixon's limited aims of "peace with honor."

*Lufbery Circle/Wagon Wheel*—Developed by American World War I pilot Raoul Lufbery, the Lufbery Circle consists of several aircraft orbiting in a tight defensive circle. Any enemy who tries to get on the tail of one aircraft will find himself with another aircraft behind him. Lufbery Circles were commonly referred to as "Wagon Wheels" by American pilots in Vietnam, and were extensively used by VPAF MiG-17s to some effect. The circle could be broken using high-speed diving passes, or long-range missiles.

*M61A1 Vulcan*—Principal gun armament used by USAF F-4Es, A-7Ds, and the F-105 series. Capable of firing nearly 4000 twenty millimeter explosive cannon shells a minute, the Vulcan is simple, reliable, and operates on the gatling principle—seven gun barrels welded to a central tube that rotates at high speed. This not only helps cool the gun but allows many rounds to be fired in a very short time. Vulcans continue to be used in modern aircraft, including all the "teen" fighters (F-14, F-15, etc.) and in the new F-22 Raptor.

*Menu*—Operation Menu was the secret bombing of North Vietnamese sanctuaries and supply bases in Cambodia, ordered by President Richard Nixon in 1970.

*Mil Mi-6 "Hook"*—Large heavy-lift helicopter used by the VPAF to move MiGs to and from remote locations, where they were protected from American bombs.

*MiG Ridge*—American nickname for Yen Tu Mountain, a ridge between Kep and Uong Bi in east North Vietnam. It was so named because it was a favorite spot for MiGs operating from Kep to hide

from American radar surveillance.

*Mikoyan-Gurevich MiG-15 “Fagot”*—Like its adversary the F-86 Sabre, the MiG-15 used German swept-wing technology. Its appearance over Korea in late 1950 came as a shock to UN fighter pilots, who had never anticipated the Soviet Union developing such a superb jet fighter. In its own way better than the F-86, the MiG-15’s small size, excellent maneuverability, and heavy armament made it a difficult opponent.

*Mikoyan-Gurevich MiG-17F “Fresco”*—A development of the MiG-15, the MiG-17 was slightly larger and had an afterburning engine, giving it higher speed. It shared the MiG-15’s excellent maneuverability and hard-hitting armament, consisting of two 23mm and a single 37mm cannon. The MiG-17’s drawbacks included the lack of a radar and a problem with low-altitude stalls. The VPAF thought it an excellent aircraft, and used it to lethal effectiveness during Rolling Thunder. MiG-17s could outturn anything in the American inventory and was limited only by the skill of its pilot. By 1972, American tactics had improved to the point that the MiG-17 was largely obsolete; the VPAF withdrew it from frontline service in summer 1972. It was considered obsolete before then by most of its users, and had similarly been retired. Later VPAF MiG-17s were capable of carrying Atoll missiles, but rarely did.

*Mikoyan-Gurevich MiG-19SF/Shenyang J-6 “Farmer”*—As the MiG-17 was developed from the MiG-15, the MiG-19 was developed from the MiG-17 as a supersonic interceptor. Early MiG-19s were equipped only with missiles, but the most common version, the MiG-19SF, had an impressive armament of three 37mm cannon. The MiG-19 was not nearly as maneuverable as its predecessors, and suffered from a tendency to stall when firing its cannon. It saw only brief service with the VPAF, in spring and summer 1972, and was quickly withdrawn following the conclusion of the war with the United States. VPAF MiG-19s were Shenyang J-6s, license-built by China; it remains the principal fighter of the People’s Liberation Army Air Force to this day.

*Mikoyan-Gurevich MiG-21F-13 “Fishbed-C”*—The first of the prolific MiG-21 series, the MiG-21F-13 was a departure from Mikoyan-Gurevich’s earlier aircraft. It was a point defense interceptor, using a delta wing for better lift, though it was nearly as maneuverable as the MiG-17. It was armed with a single 30mm cannon and two K-13 Atoll missiles. The MiG-21 suffered from poor visibility from the cockpit and a forward-hinging canopy that could kill an ejecting pilot. MiG-21F-13s were the first MiG-21 types to be supplied to the VPAF, though only in small numbers. These were quickly replaced by later marks of the MiG-21. F-13s entered service in 1959.

*Mikoyan-Gurevich MiG-21PF/PFM “Fishbed-D”*—The MiG-21PF/PFM series improved on the F-13 version by introducing a larger canopy, larger tail (which improved handling characteristics), and much improved radar. Visibility forward and behind was still very limited, and the deletion of the cannon left the MiG-21PF solely dependent on two K-13 Atoll missiles. Nonetheless, in the right hands it was a deadly aircraft, and it became the VPAF’s weapon of choice from 1967 to 1972. MiG-21PFs were not entirely replaced in VPAF service until well after the end of the Vietnam War. Later PFMs were reequipped with safer side-hinging canopies and could carry a gunpod.

*Mikoyan-Gurevich MiG-21MF “Fishbed-J”*—The second generation of MiG-21 variants, the MiG-21MF upgraded the PF/PFM’s avionics, introduced a more powerful engine and increased internal fuel, and had provision for a GSh-23L 23mm internal cannon. It also improved the radar and added two more underwing hardpoints for missiles. The MiG-21MF was the most capable fighter the VPAF had during the Vietnam War. Later developments, namely the MiG-21bis, remain in service worldwide, including today’s VPAF.

*Mikoyan-Gurevich MiG-23 “Flogger”*—Built as a supplement to the MiG-21, the MiG-23 series had

greater range and used variable-sweep (“swing”) wings for better maneuverability. Variants included interceptors, air superiority fighters, and dedicated ground-attack aircraft (the latter designated MiG-27). MiG-23s were found to be capable, but generally were flown by poorly trained Arab fighter pilots against highly-trained, well-equipped Israelis and Americans. Most have been replaced by newer designs, but a few MiG-23s are still in service, mainly in the Middle East and India.

*MiGCAP*—Codename for fighter escort and fighter sweep missions, solely to duel enemy aircraft. The term MiGCAP is generally used only by the USAF, but occasionally by the US Navy as well.

*Dassault Mirage III*—Delta-winged interceptor developed by France and generally in the same class as the MiG-21 and F-4 Phantom. The Mirage III was not quite as maneuverable as the MiG-21, but had excellent climb and dive capabilities. The Israeli Air Force (Heyl Ha’avir) used the Mirage III in the Six-Day War of 1968 and Yom Kippur War of 1973 with devastating effectiveness, both in the fighter and fighter-bomber role. Despite being outclassed by all modern fighters, large numbers of Mirage IIIs and similar Mirage 5s remain in service today, because of their reliability and simplicity.

*Music*—Fighter pilot slang for ECM. “Turn on your music” was code for switching on ECM self-protection devices.

*Naval Fighter Weapons School (NFWS)*—Formal name for the US Navy’s Top Gun program.

*NVA*—North Vietnamese Army. Its proper name is the People’s Army of Vietnam (PAVN), but this is rarely used by historians of either side.

*Pak*—Pilot slang for Route Package. These were the arbitrary divisions of North Vietnam into areas for strikes by the US Navy and USAF. Paks were not hard and fast divisions; both services routinely launched strikes into each other’s designated area. Though it ignored interservice cooperation, Paks were good for quick and easy geographical references. Pak Six, where Hanoi and Haiphong were located, was the most dangerous. Also acronymed RP.

*Paveway*—Name for the series of laser-guided bombs first used by the USAF in Operation Linebacker, 1972. The Paveway kit consists of a nose-mounted laser seeker head and rear-mounted steerable fins, with the body of a general purpose, or “dumb” bomb in the middle. Paveways are still in use today.

*Prairie Fire*—Codename for US Army Special Forces or ARVN Ranger units inserted into Laos and North Vietnam for surveillance and combat missions. Prairie Fire teams sometimes provided intelligence to higher command on American kill claims.

*Pocket Money*—Operation launched by President Richard Nixon to mine coastal harbors of North Vietnam, namely Haiphong. It began 8 May 1972, with the mines timed to remotely activate on 10 May.

*POL*—Acronym for Petroleum, Oil, and Lubricants. POL storage includes gas tanks and oil drums.

*Proud Deep Alpha*—Retaliatory airstrike ordered by President Richard Nixon following a NVA shelling of Saigon and increased attacks on American Blue Tree reconnaissance sorties.

*North American RA-5C Vigilante*—Originally designed as the A-5A Vigilante supersonic, carrier-based nuclear bomber, the A-5 proved to be a failure. Redesignated as a reconnaissance aircraft, the RA-5C proved to be an excellent aircraft, so fast it did not need fighter escort. Flak and SAMs were a different story, and Vigilantes took per capita more losses than any other Navy aircraft in Vietnam. It was withdrawn from service in 1983, and the Navy has yet to replace it.

*RAG*—Replacement Air Group. Following graduation from flight training, naval aviators are assigned to RAGs to train in their assigned aircraft type. The US Navy maintains RAGs on each coast for each type of aircraft in the current inventory.

*Boeing RC-135/EC-135*—Converted from KC-135 tankers, the RC-135 and EC-135 series of aircraft are often heavily modified with electronic sensors and take part in classified operations. Usually codenamed with some sort of variation of “Rivet,” RC-135s are used in strategic reconnaissance missions, while EC-135s are used in electronic intelligence (Elint) surveillance. Both types were used on a limited basis in the Vietnam War, and continue to be used today.

*Red Crown*—Codename for a US Navy radar picket ship, usually a guided missile cruiser, in the Gulf of Tonkin. Unlike Harbormaster, who controlled only Navy fighters, Red Crown provided raid warning and radar surveillance for the entire American air effort in North Vietnam. Red Crown intercepts were considered invaluable to American fighter crews; when teamed with a Red Crown controller, such as Larry Nowell, the combination was usually highly effective.

*Red Flag*—Nickname for the USAF’s large, multipurpose training program in the Nevada Test Ranges north of Las Vegas. Unlike Top Gun, which teaches only air combat, Red Flag is a six-week course designed to teach everything about aerial warfare, from reconnaissance to dropping bombs. Air combat is a major part of the syllabus. Also unlike Top Gun, Red Flag is open to all American armed services and friendly nations as well. It is based out of Nellis AFB. Similar versions are codenamed Copper Flag (air defense units) and Maple Flag (based from Cold Lake, Canada, specializing in winter training).

*RESCAP*—Rescue Combat Air Patrol. RESCAP consisted of at least the dedicated Sandy A-1 aircraft, but sometimes had other fighter/attack aircraft assigned as well. Ad hoc RESCAPs were often formed over heavily defended areas, and it was permissible to cancel entire strikes to cover the rescue of a single pilot.

*River Rats*—Nickname for the Red River Valley Fighter Pilots’ Association, founded in 1967 by two F-105 pilots (Larry Pickett and Scrappy Johnson) and one F-4 pilot (Robin Olds). The purpose of the River Rats was to share tactics and notes on how best to prosecute the air war over North Vietnam, within the restrictive ROE, liberally interspersed with partying. Membership in the River Rats was initially limited to those who had crossed the Red River of North Vietnam in anger, but later extended to all aircrew from Vietnam, subsequent wars in the 1980s and 1990s, and aviation enthusiasts. Since the conclusion of Vietnam, the Rats have sponsored reunions and conferences to pass on the lessons of Vietnam to the next generations of pilots, and provide scholarships to the children of pilots and aircrew killed in action in Vietnam and wars since. The author is the first child of a living River Rat to receive a scholarship.

*ROE*—Rules of Engagement. ROE has existed since World War II, but in the context of this thesis, refers mainly to the very restrictive rules imposed on American airmen by President Lyndon Johnson and Secretary of Defense Robert McNamara, and the much less restrictive rules of President Richard Nixon.

*Rolling Thunder*—Codename for air operations launched by President Lyndon Johnson in an attempt to persuade North Vietnam to negotiate an end to the Vietnam War. Due to the restrictive ROE, Rolling Thunder largely failed.

*RTAFB*—Royal Thai Air Force Base. In Vietnam, this included bases at U-Tapao, Takhli, Korat, Ubon, Udorn, and Nakhon Phanom. These bases were expanded by the USAF and personnel were



considered guests of Thailand. For the most part, relations between Americans and Thai were good.

*RVAH*—Reconnaissance, Aviation, Heavy. US Navy designation for reconnaissance units equipped with RA-5C Vigilantes. Often pronounced “Ree-Vah” or simply “Heavy.”

*SAM*—Surface to Air Missile. First developed by the Germans in World War II, SAMs were more extensively developed and put into service by the Soviet Union. In Vietnam, the SAM type used was the Soviet S-75 Dvina, codenamed SA-2 Guideline by NATO. This was a missile roughly the size of a telephone pole and guided by radar to its target at speeds up to Mach Three. Modern SAMs are several times more deadly than the SA-2.

*Sandy*—USAF codename for A-1 SAR support aircraft. Sandy’s job was to suppress enemy fire towards the pilot and/or the rescue helicopter. The call “Here comes Sandy” was a welcome one to downed American airmen. See also *RESCAP*.

*SAR*—Search and Air Rescue. SAR usually consisted of two rescue helicopters and four to six Sandy A-1 support aircraft, coordinated by aircraft on scene and the Crown HC-130P. If the terrain was favorable and enemy opposition light, the helicopter could land and pick up the pilot. If the terrain was unfavorable, the helicopter would hover and lower a cable. If the pilot was injured, a pararescuejumper (PJ) would rappell down the line to help the pilot (PJs are the USAF’s equivalent to Special Forces). It was very dangerous work, and the unwritten rule is that SAR crews never buy their own drinks. See also *HC-130P*, *Jolly Green*, *RESCAP*, and *Sandy*.

*Scissors*—A series of maneuvers in which both sides’ aircraft move towards each other, continually turning and losing airspeed in an effort to get the enemy out in front. From above, the maneuvering aircraft look like an opened pair of scissors. A vertical scissors is the same maneuver performed when the aircraft are going directly upwards; the victorious aircraft is usually the one who can risk a stall the longest.

*Su-7/22 “Fitter” series*—A series of ground-attack aircraft developed by the Sukhoi design bureau of the Soviet Union. The Su-7 saw service in the Arab-Israeli and Indo-Pakistani wars, and was equivalent to the F-105 Thunderchief. The Su-22 has also seen Middle Eastern service, and differs from the earlier, delta-winged Su-7 by having variable-sweep wings. Though both the Su-7 and Su-22 have heavy 30mm cannon and are capable of carrying self-defense heat-seeking missiles, neither are designed for dogfighting.

*Dassault Super Mystere*—A development of the Mystere fighter-bomber used by France and Israel in the 1950s and 1960s. The Super Mystere was similar in design and purpose to the F-100 Super Sabre.

*SVAF*—South Vietnamese Air Force. Its proper name was the RVNAF, Republic of Vietnam Air Force.

*SW*—Strategic Wing. USAF acronym for integrated bomber and tanker squadrons, generally intended for nuclear operations, but in Vietnam for strategic bombing.

*North American T-28D Trojan*—Initially designed as a trainer for the US Navy, the T-28’s easy handling and rugged construction made it a good candidate into conversion to a counterinsurgency (COIN) aircraft. Though not as capable as the A-1 Skyraider, T-28s served in the COIN role in the South Vietnamese, Cambodian, and Laotian Air Forces.

*TARCAP*—Target Combat Air Patrol. Navy acronym for fighter escort operations directly over a target. Instead of escorting the aircraft to and from the target (USAF MiGCAP or Navy FORCAP), TARCAP

put fighters over the target before, during, and after the strike.

*Teaball*—Highly classified operation run from Nakhon Phanom RTAFB, beginning in 1971. Teaball gathered information from all four services, satellites, and reconnaissance/Elint aircraft to present the best known radar picture of the air war over North Vietnam. Teaball, when it worked, could provide American pilots with real-time warnings of MiGs and their intentions. It is the forerunner of today's Joint Tactical Information Distribution System (JTIDS) that was used so effectively during the wars of the 1990s.

*TFW*—Tactical Fighter Wing. USAF acronym for several squadrons of fighter or strike aircraft.

*Thud Ridge*—American nickname for Tam Dao Mountain, a ridge running southwest-northwest along the northern side of the Red River Valley, northwest of Hanoi. It was so named because F-105 Thunderchiefs, nicknamed Thuds, used Thud Ridge to hide from North Vietnamese radar coverage until just before they reached targets in Route Package Six.

*TRW*—Tactical Reconnaissance Wing. Generally refers to squadrons dedicated to reconnaissance, but the 432<sup>nd</sup> TRW in 1971-73 also included fighter and strike units.

*Lockheed U-2*—High-altitude strategic reconnaissance aircraft. U-2s were used on a limited basis due to North Vietnam's defensive network, but also served as communication relays to Teaball.

*USAF*—United States Air Force.

*USMC*—United States Marine Corps.

*USN*—United States Navy.

*VA*—Aviation, Attack. US Navy acronym for strike/attack squadrons.

*VF*—Aviation, Fighter. US Navy acronym for fighter squadrons.

*VFP*—Aviation, Fighter, Photo. US Navy acronym for tactical reconnaissance units assigned with RF-8 Crusaders.

*VMFA*—Aviation, Marine, Fighter/Attack. US Marine Corps acronym for multirole units.

*VPAF*—Vietnamese People's Air Force. Proper name for the North Vietnamese Air Force.

*Wild Weasel*—USAF codename for aircraft dedicated to destroying SAM sites. Wild Weasel programs began in 1965 with Wild Weasel I, using F-100 Super Sabres, and progressed to the last (as of this writing) program, Wild Weasel VI, with F-4G Phantom IIs. Wild Weasel duty is extremely selective, and is considered possibly the most dangerous job in the American air community to this day. The proper term for Wild Weasel missions is SEAD (Suppression of Enemy Air Defenses).

*Yo-yo*—A maneuver in which an attacking aircraft, presented with a defensive break by its target, goes into a high or low climb-and-dive, losing airspeed while keep the enemy in front of the aircraft. Because the aircraft goes rapidly up and down, it is called a yo-yo.

*Zuni*—Nickname for 4-inch unguided rocket pods, generally used by US Navy and Marine Corps aircraft for ground targets.



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